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The Fitz Patrick Lectures

ON

GREEK MEDICINE IN ROME.

Delivered at the Royal College of Physicians of London

BY SIR T. CLIFFORD ALLBUTT, K.C.B., M.D. CANTAB., F.R.S.,

REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE.

LECTURE I.

PRESIDENT AND FELLOWS,—My last lecture* ended with the name of Soranus, and concerning obstetrics.

SORANUS was of the sect of the Methodists, but was far too great a man to be enthralled in any sect. Galen, who angrily repudiated Methodism, yet spoke of Soranus with unwonted respect. The renown of this great physician, from the centuries of Tertullian and Augustine through the Middle Ages, rested chiefly in this field of medicine; but to confine his distinction to any one part of medicine would do him less than justice. Soranus, who received his medical training in the later Alexandria, was a great physician in all Medicine; and, as many of my colleagues are well aware, no inconsiderable part of his notable work on "Acute and Chronic Diseases" has survived in the transcript of Caelius Aurelianus, who lived 300 years later. Still upon the Gynæcology we may tarry for a moment, as upon this side of his work Ilberg has just published an interesting essay,[1] an essay which forms a part of the large and scholarly work upon medical classics undertaken by the school of Diels.

The enormous ascendency of Galen, his vast output in which he even surpassed that which amazes us in the writers on many subjects in the first two centuries of the Empire; his intricate and ardent dialectic, which endeared him to the logicians and rhetoricians of his own and many later centuries; his teleological philosophy, which endeared him to the Church; and, above all, the brilliancy and fertility of his genius, by overshadowing obscured and even effaced the traditions and documents of his predecessors. Lost in the glamour of Galen, in the Middle Ages even the invaluable Celsus was forgotten. Not only so, but the animosity of Galen against Methodism threw the work of this school into the greater neglect. Thus it was, as again in the time of the discovery of printing, that a turn of fashion brought destruction to many a precious manuscript. Yet if in the obliteration of his works Soranus was almost as unfortunate as Asclepiades, he was more fortunate in the upholding of his good name; in all later times he has been regarded as a great if half-forgotten physician. If, then, we have to appreciate the work of Soranus, we have not to refurbish his character.

FRAGMENTS OF SORANUS ON GYNÆCOLOGY.

Of his important work on Gynæcology but little survives, nothing directly; but by a Cuvierian process of piecing together fossil fragments Ilberg has attempted, not unsuccessfully, to discern and to rectify some farther part of the relics of Soranus concerning this subject.

In the Bibl. Nationale is a manuscript, dating from the end of the fifteenth century (Parisinus graecus, 2153), of a kind of Handbook or Articella, a compilation without author's name, the middle or gynæcological part of which is a document of 67 leaves, upon which is written in a rough hand, "Σωρανός ἐστιν." On the several attributions of the constituent parts of this handbook, which in the fifteenth and sixteenth centuries had a great vogue in the practice of midwifery, I cannot here dwell in detail; suffice it to say that their distribution is now more explicit. The first critical edition of the Parisinus, by Dietz, was posthumously published, without the advantage of the editor's own care, in 1838 as being, the whole of it, from the Περὶ γυναικείων παθῶν of Soranus. But the part attributable to the master himself was less than half of it. Ermerins did something to discriminate its contents, especially in comparison with those excerpts of Soranus which are embedded in the XVIth or Gynæcological Book of the Ἰατρικά of Aetius, a compiler of the sixth century as yet imperfectly edited. But the Parisinus contains additions, both of sentences and of chapters, which are significant as to authenticity, and are also of substantial importance; especially those on diseases of children, and on anatomy and physiology. The Aetius chapters (XVI. 50–87) seem to have been, as it were, a canvas upon which certain "Soranea" were worked in.

The next important step in the reconstruction of Soranus was taken by Valentine Rose. In the fifteenth and sixteenth centuries a certain Latin book was familiarly known to obstetricians as the *Gynaecia Muscionis*. Its history is a curious one, for it is the Latin form of it which proves to be the original work, the earliest known copy being an illustrated MS. of the IXth–Xth century now at Brussels.[2] The Greek rendering, under the fancy ("mundgerecht") title of "Moschion," falsely supposed to be based on the "Genetia" of Caelius Aurelianus, and to be of the VIIIth–IXth century, is much later. It was the erroneous notion of its antiquity which Valentine Rose corrected in an able study (Soranus, 1882) wherein he proved the "Moschion" to be but a translation of Muscio, and—as Moschion—to have a pedigree not older than the fifteenth century; and, moreover, to be of very subordinate value. Many of the ignorances and errors of this "Graeculus" are set forth by Ilberg. Getting rid then of this Greek pastiche, it is on the Latin midwives' book that we are to fall back for such light as it may throw collaterally upon the Soranus from whose hands it was supposed to have come. Thus to verify the Soranus relics these relations had to be made clear.

Now "Muscio" professes to have had before him two works of Soranus, a brief and catechetical, and an ampler work. He followed in the main the briefer and more didactic of the two, but also he padded out his rendering from the larger treatise. Soranus, in what we know of him, was prone to be sententious, to utter maxims to be learned by rote; this we perceive, for instance, in the substantial fragments of the "Acute and Chronic Diseases" preserved by Caelius Aurelianus. There are similar reasons to suppose also that, after writing his larger books, he drew up a book of Responsiones or catechism.[3] Now, in these features of composition Muscio coincides likewise with Soranus as we know him from other sources. The illustrations probably belonged originally to the smaller or catechetical book of Soranus, and were reproduced to facilitate the abbreviation.[4] They have been carefully studied by many commentators, lately by Sudhoff.[5]

The outcome of this farther study of the Parisinus compilation Ilberg sums up as follows. Of the original date of it there is no evidence; the Byzantine physician put in nothing characteristic of himself or of his period. A tag from Meletius may well have been inserted later. It may have been written in the decadence of the seventh or in the awakening of the ninth century. The anonymous author had before him in its two forms the work of Soranus—Περὶ γυναικείων παθῶν, and also the XVIth Book of Aetius; and these he undertook to blend into a new book. Passing over alteration of chapters, the scissors of the compiler were applied to what were probably four books of the original Soranus. Book I., though with some modification of form, he reproduced nearly in full. Book II. was also preserved, and its order better retained. Book III. was more destructively dealt with, and moreover, after the example of Aetius, suffered interpolations and corruptions. Book IV. suffered still worse things ("traurig ruinirt"); it was reduced for the most part to perverted scraps. On the whole, it would seem that the Aetius book was the framework of the compilation, and supplied, indeed, the greater part of it; and, as Ilberg remarks, compilers were far less scrupulous than transcribers.

Up to the time of Oribasius the texts of Soranus seem to have been in fair preservation; so that from this valuable

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* THE LANCET, Nov. 27th, 1909, p. 1578.

[1] Die Überlieferung der Gynaekologie des Soranus von Ephesus, von Johannes Ilberg. Leipzig, Teubner. 1910. (Das xxviii. Bd. der Abhnl. d. Phil. hist. Klasse d. K. Sach. Geschft. d. Wissenschaften. No. II. mit sechs Lichtdrucktafeln. The appendix contains photographs of two pages of the Parisinus MS. and seven of the illustrations from the Brussels MS. of the uterus in normal and abnormal conditions of pregnancy.

[2] Bibl. Roy., 3701–3715. (Muscio occupies the second part of it).

[3] Cf. the "Interrogationes" of C. A.

[4] There is no difficulty about the date of such illustrations. There were illustrations in Vitruvius. At an earlier date Aristotle refers to σχήματα and διαγραφαί in the History of Animals; and at a later Galen seems to have produced diagrams (ὑποδείξεις διὰ γραμμῶν) of the muscles and nerves of the arm, and of optical phenomena. The Alexandrians produced many illustrations.

[5] Studien d. Gesch. de Med. IV.

compiler many smaller emendations and additions have been obtained. Probably Oribasius contains also more of Soranus, portions at present beyond identification, though some passages of the common Alexandrian tradition may have passed to Oribasius directly from Philumenos.

SORANUS AS PHYSICIAN AND SURGEON.

Of the traditions which bound Soranus to the earlier Alexandria, one of the chief was the works of Demetrius of Apamea, a disciple of Herophilus who flourished about 250 B.C., whose teaching, especially in respect of etiology, Soranus cites with admiration. It was the boast of the Methodists, indeed, especially of the more empirical section of them, that they looked μόνον πρὸς τὸ πάρον, for in their opinion to pry into causes led off to alien curiosity; while the only anatomy they required for clinical purposes (χρηστομαθείας ἕνεκα) was the state of constriction or relaxation of the tissues affected (χαλᾶν ἢ στεγνοῦν); thus for them immediate clinical observation was all in all, and normal physiology a matter of indifference. But it would have been surprising if, Methodist as he was, one standing in the following of Herophilus should have accepted the arid universals of that sect, regarded anatomy as ἄχρηστος, as ministering to mere curiosity, and dismissed the study of causes as otiose. In these respects, as in many others, Soranus, as Galen perceived, was greater than his school. The larger idea of molecular biology, and that of disease as a deflexion from the normal, were being degraded into the arid formulas of the later Methodists, a sterility which justly provoked the ire of Galen; and from their shackles Soranus did not shake himself free. He was, I think, more of a captive than Ilberg seems fully to admit,—to these empty abstractions, the κοινότητες of *strictum* and *laxum*, under which clinical diagnosis fell into little more than the dilemma of στεγνοπαθοῦν καὶ ῥευματιζόμενον ὀξέως ἢ χρονίως. Still it is no less true that these views—these concentrations on τὸ πάρον—fastened attention upon the masterly clinical observations in which Celsus, Soranus, and Archigenes excelled. The capacity of Soranus as a surgeon we may recognise in his teaching on fractures and luxations as preserved in Aetius and Niketas. In Ilberg's words, then, Soranus "ist kein Toter"; both in learning and practice and in loyal regard to tradition he stands on the heights of ancient medicine. His disciples were taught not only "claudere librum ut cogitent," but also, and yet more, *claudere librum ut videant et curent*.

It is in his therapeutics that the methodist doctrines betray themselves unmistakeably, as in the ingenuity of local applications to command the permeability of the tissues of the parts affected. In his surgery we find Soranus cautious and conservative; he did not betake himself to operation until other means had failed.

As to his ethical attitude, which was honourable, Ilberg refers us to a paper of his own[6]—one to which I have not ready access—on φθόρα, i.e., the decision between the life of mother and child, as illustrated by the maxims of Soranus Aetius.

PNEUMATISM.

Passing, as needs must by leaps, from period to period, in the next place I propose to invite your consideration of the sect known as the Pneumatists, and of the doctrine and idealism of the Pneuma. I separate the history of the sect from the history of the idea, because as a sect the phase was brief and its doctrines inconsistent; though the idea is one which in manifold forms has dominated and animated the minds of men beyond the domination and beyond the inspiration of any other idea in physiology: and this with a fervency which has penetrated far beyond the limits of the biological sciences. Indeed, as we utter the word inspiration we feel that the glow of the spirit, which from the ancient legends of the creation of life to the messages of our modern ethereal telegraphy, from the hauntings of the Great Spirit in primeval man through the storms of superstition to the haven of the soul in his purer communion with the Divine, has moulded the whole story of man, and embedded itself even in his tongue. Inspiration is just air; but what air? What in air, or of it, can be fraught with creative power? and how can it endow the tabernacle of clay with energy, life, motion, and thought?

One of the most touching aspects of human life is the perennial warfare, the rage between the idealist and the man of affairs; nay, it is even of this war that tragedy and comedy are begotten. It is a materialist prophet of to-day who bewails "the untameable wildness of the good." This is the story of Paul before Festus; of Francis before Elias and the Pope; of the "Lady Helen of Troy pacing to and fro with a nosegay in her golden shawl" before Mrs. Elizabeth Fry; of Garibaldi before Cavour; and in comedy of Quixote before Sancho, or the modern curate preaching Tolstoy before his country rector. "Church," said Mr. Tulliver, "was one thing, common sense was another, and he wanted nobody to tell him what common sense was." The dilemma is *ambulando* insoluble.

And of this kind is the story of the great Ionian idealists, the philosophic dreamers before Hippocrates and Aristotle; and the story of the Greek speculative reason, touched with an oriental mysticism, before imperious Rome. A distinguished modern author of the extremer Western variety has lately reiterated with uncompromising emphasis that in the sphere of ideas we owe all we are worth to the Greeks, a claim, however, which cannot be admitted without profound qualification. The Greek was the prophet of the "*Via Media*"; but to the idealist the *via media* has always been detestable, as detestable to John Knox as to John Henry Newman. The achievement of the Greek was that the plane was so lofty on which the seer of both blended and integrated the ideal with the actual; that his *via media* was so high a mean between the imperative categories of the idealist and of the materialist. By an exquisite insight and tact he renounced not only much of the uses of the comfortable and pragmatic kind, but, as we perceive in Plato as well as in Aristotle, he definitely relinquished also the vision of some of the elements pertaining to the ideal society. The Greek saw "the untameable wildness of the good," saw it even with sympathy; but he saw also how much of it would not come into his picture.

The "practical" nature of Roman thought.—Now we observed last year that toward these horizons of blended material and spiritual discernment Rome had not a lofty outlook. We are told, and not without some congratulation, that Rome was too "practical" for such issues; that the average Roman was above all things the practical man. Well, were he as audaciously satisfied as Dr. Archimedes Silverpump of the Lycurgus House Academy, he had notwithstanding his enormous place in the world's history. Still it is true that his work, fundamentally necessary as it was, the necessary foundation upon which modern Europe should be built, was yet but a substructure, and the Roman a labourer to be dismissed when this task was done. And, as we observed also in last year's lectures, while the Roman pavior was wielding his beetle, while with plumb and square he was shaping and laying the great blocks for the edifice upon which we are designing and are building the superstructure, even then ideas could not sleep. We have seen how the leaven of alien minds in Rome was fermenting, expanding, and penetrating to the joints and marrow of her work; and, as it in mockery, displaying upon her sullen atmosphere phantoms of what after her was to be; even then Rome was not permitted to forget that man cannot live by bread alone; not even if the loaf be protected by the policeman. It is this untameableness of ideas, this unconquerable mind of man, which makes the fascination of our story of the Greeks in Rome, as it does of the history of the Jews, or of the ideas of the Jew, in barbarian and in modern Europe. For, if under other guises, the conflict of Mammon, of Pagan, of Jew, and of Christian was never keener or more searching than it is to-day.

Now, as in our own land we often congratulate ourselves—too often perhaps—on being above all things "practical" men, and as in respect of the function of Rome this term is often used as sufficient for all explanation, may we tarry for a moment to ask for some notion of its meaning? For instance, is Euston terminus more "practical" than the Pantheon? or the Pantheon more "practical" than Santa Sophia or the Parthenon? And if so, why and how so? To answer this question must we not consider which of these achievements will have the most abiding use for mankind? Furthermore, we might ask if the ideas of the order of Euston, or of an Atlantic steamship, exist for the sake of the ideas of the Parthenon, of Canterbury, or of William Wordsworth? Or conversely? We cannot pursue this train of thought, but we perceive that by "practical" in the Roman

[6] "Zur Gynaekologischen Ethik der Griechen" in the Archiv für Religionswissenschaft, xiii., 1910.

sense we mean the immediate needs, the things and devices of to-day as contrasted with things to come; or as an adept calculation and encountering of transient contingencies as contrasted with larger, future, and more consummate ends. While we admit, then, that Rome was laying the material bases of social order and culture, we perceive that with the issue of this material function her civic life began to decay; for to ends she had contributed little. And we are not surprised then to hear that the Greek too, not Aristotle only but Plato likewise, regarded himself as above all men practical; that in all the schools of ramifying philosophy the conscious, deliberate, and prophetic purpose of each was the art of life—the *βίος τέλειος*. Shall we not, then, consider how we defer to the Roman as conclusively the "practical" person; may we not have to describe him rather as the artisan of a material office, as the pioneer before the architect?

The prophetic genius of Ionia.—Now to return to the philosophers of the Homeric land; no work, ardent as it was, inspired as it was, could have seemed more visionary and less practical than theirs. In the later Attic reaction, the restraint of a more measured harmony, their exorbitant speculations seemed overwrought and in the void; Socrates explicitly repudiated their physics, and to this day they are too often regarded as vacuous bombinations. Yet to the prophetic genius of Ionia, the "*sapienza poetica*" of Vico's happy phrase,[7] we owe at least four cardinal ideas, ideas which lifted the earth into the universe, revealed the universal spirit, the creative process, and the universal order; the four master ideas which within my present limits I must indicate nominally as the Cosmic idea, the Dynamic idea of a Continuum of streaming and indestructible energy, the Atomic hypothesis, and the compound idea of Natural Law and of Evolution. And to these I might almost venture to add the idea of gravitation. As we glance at this childhood of science, idly noting perhaps little more than its obvious puerilities, we are apt to forget the ironical question, What is the use of a baby? Yet some further reflexion will make manifest to us, behind this inexperience, an insight and a grip of essential principles which 2000 years have enormously developed but hardly regenerated in principle. It is startling to feel how near us these great thinkers are; how much nearer than Abélard and Aquinas, when they unfurl the canopy of heaven into the air of infinity, when they prophesy of celestial and terrestrial physics, of natural law, of evolution from rudiments, of condensation and attenuation, of molecular energy, of formative combustion, and even of mind-stuff.

But to bring these radiant visions under some measure of realisation (*κόλησις*), and to vindicate the values of medicine and natural science independent of philosophy, in the fifth and fourth centuries respectively two men as great, but of other gifts, arose—namely, Hippocrates and Aristotle. The reader of the greater Hippocratic treatises will find, as Gomperz has generously maintained, the door opened upon a way which to us has become so familiar that we find it difficult to understand how in its own day it revealed the growth of a method of thought and discovery wholly new to the world—namely, the scientific method, as contrasted with scientific imagination.[8]

Now who was this great Hippocrates, this prodigious man, and was it by the power of medicine that he was fashioned thus out of the visionaries of the age? That he did not stand alone, that he must himself have been the product of a great school and of a great tradition, our historical sense would bear witness. It is no barren fancy to associate the Father of Medicine in our imagination with the Father of History. Both inherited the luminous Ionian mind; and the author of Airs, Waters, and Places, cradled on the same enticing seas, had likewise travelled widely and observed shrewdly; both saw common things under the species of a large humanity. Indeed, the Hippocratic scriptures themselves also testify to a great school and a great tradition of medicine which, if sown and watered in a forgotten past, bore its golden fruit in Hippocrates, in Aristotle, and in the scientific schools of Alexandria.

In the anonymous Menonian MS. of London it would seem that Aristotle attributed a certain book of this heterogeneous Hippocratic collection—namely, the Περὶ φυσῶν—to Hippocrates himself; and it is evident that if we could fasten any one of these books upon Hippocrates we should have therein a clew to his personality, and to the authenticity of other books of the canon. Hitherto, as I said last year, we have assumed that certain works marked by breadth of view, scientific temper, and sagacity, seemed by these very qualities to proclaim themselves as from the hand of the great master himself. And perhaps this is not altogether to reason in a circle, for such qualities, by the witness of his contemporaries, were his. But, unhappily, these are not the qualities which mark the treatise Περὶ φυσῶν, a title difficult to translate into English, but which may be rendered *Concerning Airs*. Far indeed from breadth, precision, and wisdom, the Περὶ φυσῶν is a popular oration as windy in its rhetoric as in its subject-matter. We recognise in its affectations the rules of phrase, trope, antithesis, and cadence, which with a finer art were observed by all Greek rhetoricians, as, for example, in the masterly treatise of the fifth century, the Περὶ τέχνης of the same collection.[9] It is, in fact, an inferior product of the Stoical physiology afterwards, as a school in Rome, known as Pneumatism; and if Aristotle really did attribute it to Hippocrates—well, says Ilberg, so much the worse for the medicine he was taught in Stagira. But I must not occupy you with the pretentious banalities of the Π. φυσῶν;[10] I have alluded to this tract, as I might allude also to some sentences in the Περὶ τέχνης, only to indicate the prevalence through the Hippocratic period of the doctrines recognised later still as a school under the title of Pneumatism, doctrines which in Rome were taught by the interesting physician Athenaeus of whom I am to speak.

The origin of the idea of pneumatism.—In my remarks on this school, I must begin by acknowledging the debt which, in common with all students of the subject, I owe to Wellmann's essay on "Pneumatism and the Pneumatists."[11] Yet I trust that, although without it my own would have been very defective, this sketch may be no mere reproduction of Wellmann's work. Amid the manifold aspects and sects of Roman medicine I have chosen to solicit your attention at somewhat greater length upon Pneumatism, because among other qualities of interest its central idea seems to me to shadow forth what I have elsewhere ventured to describe as the pathetic quest for oxygen. In the history of opinion we have to beware not only of shaping the opinions of the past by our own, but also to take heed lest, while thus detaching ourselves as critics, and thus desiring to attribute to each of our ancient forerunners just his own uncoloured ideas, we discriminate them with distinctions to which he was a stranger. The ancients had not distinguished, disentangled, or differentiated concepts, or principles, so as to argue within and around them with the precision and discernment of later generations. In those times ideas were not so much mingled as inchoate, and still implicit together; their rudiments had not extricated themselves into separable strands. Ideas were nebulous, approximate, and blended. Logic came afterwards, only too soon, only too systematically; for many a century only to deprive the earlier speculations of their spontaneity and of their naivety, while masking with its wire grille the vacuity of fact and the lack of verification.

The origins of the idea known for a while as Pneumatism are lost in the backward of time. The soul itself was an air or vapour. Mr. Barnard Cook tells me that the goddess which escaped from the cleft skull of Zeus may be regarded as his soul. In early Indo-European religions the soul in both sexes was conceived as feminine; as, for instance, the Sirens, the Harpies, the Eumenides, and so forth. Thus from Zeus we move immediately to Ether (Αἰθήρ), or ethereal essence, a dynamic conception having many qualities,[12] or

[7] For an interesting and discerning comparison of rational analysis with the instinctive, impersonal insight of myth and poetic tradition, often of deep intrinsic philosophical meaning, see Flint, Study of Vico, 1884.

[8] There is no writing extant which brings this new temper so impressively before us as the Hippocratic treatise on Ancient Medicine. Herein is set forth the way of experience, of careful observation of facts. And somewhat sharply controversial as it is against unbridled speculation, and the deductive application of philosophical ideas to the interpretation of natural phenomena, it is yet interesting to note that this treatise is also of Ionian origin.

[9] Vide Theodor Gomperz, Die Apologie d. Heilkunst, 2nd edition, 1910.

[10] I have written more fully of this treatise in the Classical Review for 1910.

[11] Philologische Untersuchungen, xivtes Heft. Die Pneumatische Schule bis auf Archigenes; von Max Wellmann. Berlin, 1895.

[12] The element was not active primarily, it was but *ποσότης*; it was on its quickening into a quality (*ποιότης*) that it became creative. And it is to the qualities, says Wilamowitz, that the platonic term *τὰ στοιχεῖα* is properly applicable. The pneuma provided, as it were, the λόγος of this conversion. And as if this were not ingenious enough

developing into many; for the pneuma—if I may anticipate the use of this term—was imagined as a yet more primeval substance (Urkörper) out of which when fertilised by a seminal principle (σπερματικὸς λόγος) particulars emerged. Thus the idea of the pneuma contained more than the several notions of air, of vapour, of fire; it was a world force, a divine reason. And thus, as being in "conciliation" with nature, its works were interpreted teleologically; and in this connexion it was that pneumatism became allied to stoicism, an alliance at first sight unlikely, as one without radical coherence; but in consistency stoic physical teaching as a whole was lacking, being rather an eclectic array, a syncretism for pragmatic ends, than an organised philosophy.

It is to Galen, whose value as a source of medical history cannot in our dearth of sources be over-estimated, that we owe most of our knowledge of Pneumatism in its more developed doctrine. Our knowledge of the system is also enlarged by a pseudo-Galenic handbook, Ὅροι ἰατρικοί, supposed by Rose and by Diels to represent Athenaeus, as it observes his arrangement. But, being of later date, probably of the third century A.D., it contains more than this, and throws some light upon Agathinus, Archigenes—of whom I have more to say hereafter—Leonides and Heliodorus; and in the manner of the second century is a fusion or tesselation of pneumatism, methodism, and eclecticism. This treatise deals also with the pulse lore with which, as we shall see, the pneumatists made great play.

The doctrines of pneumatism.—To set forth the doctrines of Pneumatism, from their primeval sources to their completion, chronologically, and with due regard to their several exponents, would within our limits be impossible. I will try to sketch the history succinctly. In advancing then from the primeval ethereal essence (Ζεὺς-ἀἰθηρ), we have glanced at an early division into active and passive, into primary force and primary substance, the conjugation and products of which opposites played a large part in much of the later philosophy, without as well as within pneumatist circles. And passing on to the farther evolution of these vapourous essences, we find them elaborated in Plato and Aristotle,[13] from whom the dynamic view of life was carried forward to Alexandria rather through Diocles[14] and the Sicilian School by which Plato was especially influenced, than on the Hippocratean tradition, which indeed was soon to petrify into maxims or "dogmatics." Now it is of peculiar interest to us as physiologists that an effort was made by these medical philosophers to conceive of a dynamic essence "between air and fire"; for here it is that we note the beginning of the pathetic quest for oxygen which, from Empedocles to Lavoisier, drove physicists, chemists, animists, and vitalists, like a gadfly.

I have already reminded you of the rapturous idea of flux revealed by Heraclitus. Worlds away was his rushing, teeming, manifold, many-coloured torrent of life from the grey motionless shadows of the Parmenidean unity. But we must drift down on these subtle airs to the Timaeus, whence, and from other sources, we learn that the whole apparatus of breathing was regarded as independent of the animal organisation; the "ζῷον" was already "πλάσθεν"—moulded into form—when this dynamic function was added to it.[15] The structure of the whole body being pervious to both air and fire, as the most subtle of all created things (πάντων γενῶν σμικρομερέστατον) fire drives the air through its pores; wherein we find an early allusion to respiration through the pores of the skin (διὰ μανῶν τῶν σαρκῶν), an ancient doctrine at least as old as Empedocles and probably older. Without going tediously into detail, Plato's conception was of a double cage of net or wicker, the outer containing air, the inner containing fire (as it were cages of carbonic acid and oxygen) with inlets to the bodily orifices, so that those agents by alternate inflation and depletion (ἐκπνόη and ἀναπνόη) should palpitate through the body. We start full; then the air, heated by the fiery envelope, drives by the nearest way through mouth and nostrils; then again, to avoid a vacuum, comes a compression (περίωσις), so that the air escapes through the tenuous interstices of the flesh (inspiration), and so onwards by oscillation (αἴωρα) through the blood-vessels (φλέβας) and the cavities (διὰ τῆς κοιλίας): "making its course from the inwards to the parts extreme." The corpse differs from the plastic but not yet breathing body in that both soul and "form" have escaped to their refuge (ὑποδοχή), and left the "matter," which they had temporarily impressed, inanimate. "To die is to be a counterfeit; for he is but the counterfeit of a man who hath not the life of a man," said another authority. Such in rough outline was the remarkable contemplation of these great thinkers upon that primeval miracle the respiration, the inhalation of life from the invisible circumambient ether, essence, air, spirit, soul. "And He breathed into his nostrils the breath of life, and man became a living soul."[16]

The next considerable step in medical pneumatism was the fusion or adaptation of this dynamic idea with that of the four elements or radical substances (ῥιζώματα) of Empedocles—fire, air, water, earth—termed the τὰ ἁπλᾶ or rational units, the creative qualities of which (ποιότητες) were hot, cold, moist, dry. This reconciliation seems to have been due chiefly to a certain Chrysippus, a younger contemporary of Aristotle, who may be taken as the philosophical founder of explicit pneumatism as interpreted long afterwards for medicine in Rome by Athenaeus. Although the very obscure treatise Περὶ πνεύματος is not authentic as a work of Aristotle himself, yet no inconsiderable portion of the doctrine, as we may note by the terminology, is Aristotelian.[17] Galen[18] speaks of Chrysippus as the father of the sect (πρόπαππος τῆς αἱρέσεως), but he attributes no small share of it also to the direct influence of Aristotle. The Chrysippus of whom I am speaking was clearly not Chrysippus the Stoic, who lived a century earlier; but this distinction does not quite satisfy for the identification of this renowned physician so frequently quoted by Galen. For it seems probable that in the later fourth and earlier third century there were in Alexandria at least two of the name, father and son. However, merging the lesser in the greater, the greater Chrysippus, who may have been the master of both Herophilus and Erasistratus—of Erasistratus, if not directly yet at any rate indirectly through Metrodorus—was himself of the Cnidian school of medicine, and a disciple of Eudoxus.[19] Although he had travelled much and learnt of many, he seems to have retained the Cnidian habit of minute observation of instant detail, of indifference to Coan reasoning upon remoter causes—such, for example, as on "airs, waters, and places"—and yet of academic logic. This sedulous obedience to fact may have fortified in Alexandria the bent inherited from Aristotle to anatomy, surgery, and symptomatology; and sowed there, moreover, the seeds of the subsequent empiricism and scepticism to which I have more than once referred. By tacking on many little points of agreement,[20] on some of which I shall touch incidentally, as well as by the new ideas with which he enriched medicine, we shall be able to trace the influence of Chrysippus into later times; as, for instance, in the use of herbs and in other notes of therapeutics, especially concerning venesection, on which practice, as I shall show presently, Chrysippus set himself against the whole of ancient medicine, and with the effect on later generations down to Galen, to which, in the history of Asclepiades, we gave some consideration last year. "Chrysippus the Cnidian," says Galen (XI., 150 and 252), "who displaced (ἐξελὼν) phlebotomy altogether from our means of cure."[21] But to this important matter I shall return hereafter in some reflections

the pneuma was itself regarded as consisting in three phases, ἕξις the grossest, φύσις the generative, and ψύχη the finest—sensation and thought. And above these was the ἡγεμονικόν, or ruling quality placed by Aristotle, Chrysippus, and Athenaeus in the heart; but by some pneumatists this will or mastery was placed in the brain; but how, said the rest, could it energise in the coolest part of the body?

[13] On this period I am indebted to conversations with Professor Henry Jackson and to Mr. Barnard Cook's "Metaphysical Basis of Plato's Ethics," 1895.

[14] Personally I am disposed to attribute the Περὶ φυσῶν to some follower of Diocles.

[15] Tim. 78, c. &c. Body, matter, or substance is perhaps most readily defined for this argument as resistance—inertia; it lay between "void" on the one hand and "form" on the other.

[16] It is worthy of remark that Lawrence Oliphant said, "The sense of union with Christ, of His living in us, was manifested, or became perceptible, in a physical sense, chiefly in changes of the natural respiration."

[17] On this part of the subject I am indebted to an essay by Neustadt: Ps-Aristoteles, Περὶ πνεύματος, Hermes, 1909.

[18] IV. 160; and five or six other passages noted by Neustadt.

[19] In his earlier paper in Hermes (1900) Wellmann exposes a certain "chronologische Ungeheuerlichkeit," due to the confusion of the Alexandrian teacher with namesakes; and to his guidance I am here again indebted. I may add that Wellmann regards Chrysippus as directly the teacher also of Erasistratus.

[20] Vide Wellmann's useful lists in Susemihl (loc. cit.).

[21] Neustadt, loc. cit.

upon the story of the pulse. The works of Chrysippus were still extant in the time of Celsus.

Now I will pass quickly over most of the interminable stoical and more or less pneumatist dialectic, worthy of medieval times, recorded by Sextus Empiricus, Diogenes Laertius and otherwise, as to modes of generation from those units; how on the dominant idea of generation earth and water were passive substances (*παθητικά*), fire and air (*δραστικὰ*) were powers (*δυνάμεις*), and so forth; over much logic also as to fire, heat, air, and pneuma; as to rarity and density (Zeus); as to heat in organic and inorganic bodies respectively; how far—and this is most interesting—fire (or pneuma) was not always a separating agent, but, as in the technical arts (*θερμὸν τὸ ἐργαζόμενον*), might fuse, temper, construct, and modulate them (make rhythm); passages which remind us of the lofty vaunt of Prometheus—

> "..... in the fiery flame that lends
> Its aid to every art."[22]

Fire, that is, might work either as an element (or substance, *ὕλη*) or as a tool (*ὄργανον*). And if with some thinkers pneuma was regarded as a kind of fire, with others it was regarded as a fifth element or *ἁπλόν*; in either case by their various mingling and the formative fire the several main tissues of the body (*ὁμοιομερῆ*), that is, bones, flesh, blood-vessels, &c., were evolved.[23] It was generally agreed at any rate that heat, to which at least pneuma could attach itself, was the demiurgic power, and thus that the innate pneuma (*σύμφυτον*)[24] by movement kindled the inward heat (*θέρμον ἔμφυτον*); and by its penetration fused the whole into integration, or uniform harmony (*ἕξις*), promoted growth and propagation (*φύσις*), by way of which thinking comes, "for vapour cannot think," and awakened thought (*ψύχη*); the heat being constantly moderated by respiration. The Sicilians, on the Pythagorean tradition, regarded the heart as the seat of this inner or governing (*ἡγεμονικὸν*) fire, an attribution which I need scarcely say was accepted in the main by Aristotle, and thence was handed down to medieval Europe. It is peculiarly interesting to us thus to trace the fifth element or quintessence through Aristotle to Harvey, who still conceived it as the universal principle of motion[25] animating all things from the starry sphere of the heavens to the tireless orbit of the heart. For of life the Aristotelian doctrine was that of the three spirits—the vegetative, the animal, and the vital—"the vital is begotten of the purest heart's blood, and conveys the glow of life through the other members, which gives them all the capabilities of action which emanate from the heart's vitality, the arteries serving for the transmission of this spirit to all the members"—

> "Spiritus intus alit, totamque infusus per artus
> Mens agitat molem, et magno se corpore miscet."
> —*Æneid*, VI., 726.

We perceive, then, that pneumatism was a much larger idea than animism, which in its peripatetic doctrine contemplated the vital principle under three particular forms. Pneuma is nearly identical with the primeval principle of *νοῦς* (Anaxagoras), an energising principle yet no metaphysical hypostasis, but something physical, the finest matter (ether) vibrating in and through all things, but most vivid in living things.

When Aristotle says, and says truly, that cold condenses (*πυκνοῖ*) and heat makes more permeable (*μανότερον*), we seem to be hovering about the edges of Methodism, and to apprehend how and where these outgrowths of doctrine branched away from each other. To the academic student it may seem perverse that with such features in common the various sects of which we are speaking kept so bitterly aloof, each within its own conventional palisade; but in our own day, with far less excuse, are not these tribal animosities still as fierce, almost as stubborn, as they were in certain Pneumatists who, according to Galen, put their sect before their country? Many of them, poor things, had no country; and the Pneumatists, in the breadth of their ruling idea, seem to us to have been more disposed than men of other sects to sympathise with alien opinion. Thus it was that many of the pneumatist school approached, or indeed joined hands with, the Eclectics; but in no period of culture has a consciously eclectic school found the inspiration of life; in all times the doctrines of such schools, like compromises in practical affairs, have formed a mosaic rather than an organic body or synthesis, and have proved therefore to be temporary accommodations, and seminally impotent.

Relations of pneumatism to other doctrines.—So far I have pursued the general story of these ideas without arranging them formally in medical schools, or attributing them exactly to their respective teachers, in order to set forth an explication of so much of the pneumatist doctrine as, with some considerable peripatetic infusion, brought this school of medicine into alliance with the philosophy of the Porch.[26] For, as I have hinted, it is rather surprising to us to find the quickening leaven of the pneuma so actively at work in association with the Stoics, for whom all emotion was a perversion or a defect of virtue. This inconsistency was not only felt by such later Stoics as Panaetius and Posidonius, but became a subject of apologetic. Diels, however, in his essay on the physical system of Straton, suggests, or rather points out, that the pneumatic doctrine descended to Medicine more directly through this peripatetic teacher to Erasistratus of Alexandria, and thence to Rome. It is in the pseudo-Aristotelian *Περὶ πνεύματος* that we first find the pneuma definitely accepted as a fifth elemental quality.[27] And we have seen that the undoubted influence of Chrysippus in the Alexandrian schools pointed to him as the moulder of the theory of Pneumatism. The testimony of Galen, as cited by Neustadt and others, is not inconsistent with this attribution to the Peripatetics, for he says repeatedly that Athenaeus drew freely upon Aristotle. Another most interesting link of the tradition we find again in Diogenes of Apollonia[28]—namely, that both Aristotle and Theophrastus avoided any radical distinction between pneuma as the original or even as the one primary element, in which thinking stuff was implicit, and out of which accordingly came order in the universe, and common air; though they soon entered into refinements, notably as concerning that vague but penetrating apprehension of oxygen—the "substance between air and fire"—on which I have already dwelt. More fancifully, airs might be drier or damper, hotter or colder, more attenuated (spirit) or condensing into phenomena; and so on. Thus Diogenes no doubt contributed to the rhetorical sophistry of which the pseudo-Hippocratic treatise *Περὶ φυσῶν*, and others like it, consist; a degradation of lofty and prophetic ideas into coarser notions of blasts and tensions of air compressing, expanding, shaping, or disintegrating an inert matter. Thus by ruder and coarser minds two great dynamic ideas—the pneumatic and the atomic hypotheses—were debased; while the sagacious and prudent clinics of Hippocrates were frittered away in frothy rhetoric, barren Methodism, or formal and arid Dogmatics. In the absence of sufficient tests of premises and of sources this lapse into sterility was perhaps inevitable; moreover, the Roman temper was for such thumb-rule formulas as Themison and the Empirics provided. It is true notwithstanding, as we shall see, for instance, in Aretaeus (or Archigenes), in Heliodorus, and in Galen, that beneath all this sophistry a substantial medical and surgical

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[22] ΧΟ. *καὶ νῦν φλογωπὸν πῦρ ἔχουσ' ἐφήμεροι;*
ΠΡ. *ἀφ' ὅτου γε πολλὰς ἐκμαθήσονται τέχνας* (261–2).

[23] On the Homomeria, or kinds of structure, of Anaxagoras vide Lucret., I., 830 et seq.

[24] The Pneumatists proper (Athenaeus) identified the pneuma with the innate heat (*ἔμφυτον θέρμον*) as a single entity, and also, with Aristotle, accepted the heart as the seat of it (*τὸ ἡγεμονικόν*).

[25] In their several orbits or spheres (circular as being the most perfect form) whirled the sun, moon, and planets, while the outermost sphere of the fixed stars whirled round the others with an enormous velocity animated by the quintessence or ethereal fire. This universe, a plenum, spun in the infinite void. The expansive elements (fire, air), being centrifugal, and the heavier elements (water, earth), centripetal, the whole was balanced, though it is interesting to note that ultimately all things (even fire itself) tended towards the centre of the earth (gravitation).

[26] I cannot dwell here on the points of difference: such as that for the Peripatetics heat and cold were drastic, and dryness and moisture passive; that Athenaeus regarded these substances variably as sometimes matter, sometimes as forces; that substances or elements, as *ποσότητες*, were often confounded by the Stoics with their active qualities (*ποιότητες*); e.g., water with moisture, earth with dryness, and so on. Indeed, the Stoic hair-splittings amidst these permanent or interchangeable logical entities, as between *ποσότης* and *ποιότης*, for example, are to us intolerable, and were in respect even of their own time as vain as for his time the logomachies of Duns Scotus.

[27] In Galen's words (quoted Neustadt, loc. cit.): "*Περίττον παρεισάγει κατὰ τοὺς Στωικοὺς τὸ διῆκον διὰ πάντων πνεῦμα.*"

[28] Recently well edited, with Introductory Essay, by Krause, Posen, 1908–09. This Diogenes is to be distinguished, of course, from the (later) Stoic. Vid. et. Diels. Fragmenta in Ed. of Excerpta Menonia. Berlin, 1893. And Axon Nelson. *Περὶ φυσῶν.* Upsala, 1909, p. 101.

art was making its way, propagated in the main by the stream of Alexandrian science from Empedocles, Hippocrates, and Aristotle.

THE ARISTOTELIAN INFLUENCE IN ALEXANDRIA.

In endeavouring to elucidate this propagation and course of scientific ideas after Polybus, Diocles, and Praxagoras through the schools of Alexandria to Rome I have mentioned the name of Straton. Unfortunately for the historian, the name of Straton, like that of Chrysippus, was attached to several individuals. Of these, one, namely, Straton, son of Arcesilaus, of Lampsacus, tutor of Ptolemy Philadelphus, succeeded Theophrastus (B.C. 288) as head of the Peripatetic School, and held this position for 18 years, when he was followed by Lycon. Now this was the Straton who devoted himself so assiduously to natural knowledge as to receive the cognomen of Physicus. And Cicero (Quaest. Acad.) upbraids him for so giving himself up to nature as to neglect the study of virtue. But there was also a Straton, the same or another, an eminent physician of the third century, who was associated with Erasistratus. He is important enough to receive frequent mention over the centuries from Themison and Soranus (who quotes him on prolapsus uteri) to Oribasius and Galen, and to Alexander and Aetius. He opposed venesection after the manner of his alleged pupil Erasistratus; he was the first physician, so far as we know, to describe elephantiasis; and Erotian quotes him as author of a lexicon of Hippocrates. Haeser seems to identify these two persons; Fuchs (in Puschmann) separates them. The unity or duality of person may be of no great importance, for, if two, they were both in the line of the same tradition; but the force and direction of Aristotelian influence is a question of the keenest interest. The Sicilian tradition was never free from magical bias, and the Platonic School, which was impressed by it, set back the inductive side of learning. If, like Bacon, Aristotle may seem never to have apprehended, as the Ionians seem to have done, the infinity of the scope and subjects of knowledge, yet by virtue of this very concentration he restored the method of research by the serial order of facts and, like John Hunter two thousand years later, he brought together a vast collection of facts, acquired in great part by personal experience, but also by cautious inquiry, not of philosophers but of practical men, such as fishermen and huntsmen. Now such, we are told, was the very influence which the efficient if ambiguous Straton carried to Alexandria. In his own work Straton attempted to base science on experiment, and in particular we learn that he made systematic experiments on a "vacuum." So also Aristotle's extensive dissections of animals must have forwarded the study of anatomy in Alexandria. Furthermore, we know that Aristotle collected a large library, and that it probably became the foundation of the Alexandrian. We know also that in collecting these books he did so with a view to a historical coördination of knowledge, for which end he organised writers in several departments: Eudemus was editor-in-chief; Menon compiled the medical literature; Theophrastus that of minerals, of physics, and of botany; Aristoxenus that of music. Sadly we deplore the utter destruction of all these documents. By certain words and phrases we may trace the passage of these ideas through the Alexandrian Schools, especially through Erasistratus down to Athenaeus, the last physician, as we have said, to build directly upon Aristotle. For example, in the meaning of nature (*φύσις*)—concerning which Athenaeus definitely cites Straton; in the several kinds of the soul; in the hegemony of the heart; and in the theory of generation we recognise Aristotle.

Unfortunately, hitherto the discoveries of papyri in Egypt have brought forth few ancient records of Alexandrian medicine.[29] However, in the British Museum is a papyrus, apparently of just pre-Galenic date (noted by Mr. Kenyon in the *Classical Review* for 1892), which deals with certain points in dispute between the followers of Herophilus and Erasistratus. And Karl Sudhoff (Leipzig, 1909) has recently collected many interesting notes concerning drugs, customs, diet, and baths; and on temple and hospital matters: but no fragment of any great writer, nor any illumination of the history of ideas, has turned up as yet. From such sources as we have, we learn that in the period of comparative peace which ensued in Alexandria after the internecine strife of the Diadochi until the expulsion of the physicians and the *savants* to the islands and Asia Minor from Alexandria by Ptolemy VII. (Physkon), a strange contrast to his predecessors, and before the diversion of the main stream of culture from Alexandria to Rome, burst forth that brilliant school of which we know so much by the glory of its notable achievements and so little by its documents. Moreover, under the Empire, and even in the later years of the Republic, the intercourse between the two cities both in trade and culture had become easy and continual. Celsus, for instance, in his therapeutical advice to consumptives, speaks of the voyage from Italy to Alexandria, even in the petty craft of those days, as "aptissime." In Alexandria then Hellenism had its fling, touched however more and more by Oriental influences, especially of that learned and ingenious race the Jews[30] and Syrians, of whom even then there were many in the city; influences which a little later, in the Neo-Platonic and Christian Schools, became potent, and even ascendant, down to the second great fire of the Alexandrian libraries in the fourth century.

We have seen, then, that the powerful and insatiable mind of the Greek from Anaximander to Plato, before the discipline of observation and analysis initiated by Hippocrates and Aristotle, had achieved certain general ideas of cosmic scope and significance. These ideas once apprehended, the framework of orderly knowledge had to be built up by more laborious methods. The difficulty then lay in the gearing of this tremendous thinking engine to practical work. While unharnessed, it spun about itself with enormous velocity, weaving out of its own dust what Francis Bacon called its cobwebs. These buzzing and ineffectual revolutions are almost more audible to us in the first centuries after Christ than in the thirteenth. For a season in Alexandria this tremendous energy was buckled to the real work of spinning webs, not of notions only, but of facts—of things, that is, which had happened, which were happening, and which experimentally might be made to happen. And in the Aristotelian tradition we know how brilliant were the results of these Alexandrian scientists, not only in celestial and terrestrial physics, but also in biology. For in this College the names of the great anatomists Herophilus and Erasistratus are even more familiar to us than those of Hipparchus, Archimedes, and Heron.

ALEXANDRIAN MEDICINE.

But to proceed with the sketch, so far as relics and fragments enable us, of those features of Alexandrian medicine which reappear in Roman medicine, and in our present concern with the Pneumatists. Speaking very generally, of the two great anatomists, Herophilus—one of whose masters was the Coan Praxagoras, led more directly from the Hippocrateans to Galen; Erasistratus from Cnidus to the Methodists and Pneumatists. And we can get a little nearer, perhaps, to the facts than this, though the respective disciples, or nominal disciples, of these masters perplex the modern historian by their manifold inconsistencies, vagaries in which the Herophileans particularly erred, even forfeiting the birthright of their school by shirking its anatomy and, with the frowardness of the Christians after them, dissipating the master's teaching in sophistries, elaborating a wiredrawn dogmatic system upon the flimsy foundation of glosses and commentaries on the texts then intact in the vast libraries of their city.[31] The Erasistrateans were more steadfast; they kept closer to their doctrine, and seem to have adopted much of the teaching of Straton the Aristotelean; they kept up at any rate some anatomy even down to the second century A.D. (Galen), and on their empirical side did better service than their dogmatising rivals.[32] And accordingly the Erasistratean School on the whole prevailed.

Herophilus, born at Chalcedon, lived and worked in

[29] Even of later date the medical finds are scanty. Meyerhof and Pfüger discovered in a library in Cairo some unknown MSS. on eye diseases of Arabian origin, and Meyerhof adverts to such relics in Damascus and Constantinople. These may prove to be translations of older treatises.

[30] It is said that in the reign of Augustus there were a million Jews in Alexandria; and we know there were Jewish physicians in the first century A.D.

[31] The name of Dogmatists was given to this school, if I remember right, by Galen. In working rather by the letter than in the spirit of their great founder, Hippocrates, they became the Pharisees of Ancient Medicine, as in after time were the Galenists.

[32] Besides the historical treatises already cited I am, in what follows, indebted also to Susemihl's Gesch. d. Griech. Litt. in der Alexandrinerzeit, Leipzig, 1891. This scholar at any rate perceived that from a history of culture Medicine could not be omitted. The medical sections are in great part from the pen of Wellmann.

Alexandria under the first, and perhaps in part under the second Ptolemy. In the eastward expansion of Greek scientific culture his doctrines were carried to Pergamon, and later to Laodicea. It is worth noting, in respect of the tradition leading down to Galen, that under the Attalid kings Pergamon was, at some interval, comparable in culture even with Alexandria; and schools were perpetuated there till Galen's time, although apparently with some decline; for we are told that when in Cæsar's campaign the library of the museum—not of the Serapeum—was burned, the Pergamene library was brought to Alexandria, only at a later time to be destroyed, with the Serapean, by religious fanatics. The school of Smyrna, on the other hand, by way of which, as we shall see, the prescription of wine as a medicine probably reached Asclepiades and Athenaeus, was founded, as we learn on the contemporary authority of Strabo, in the first century B.C., by Hikesios, and he was an Erasistratean.[33] But to return to Herophilus; Haeser reminds us that, great as were his researches in anatomy, especially as regards the nervous system, yet before him Praxagoras seems to have made no inconsiderable advances in this study. He had distinguished, for instance, between the motor and the sensory nerves, although he presumed that the sensory nerves arose "in the centre of feeling—the heart." But over the earlier schools,[34] as also over Galen and the later, the Alexandrians had the incalculable advantage of dissecting the body of man.[35] Herophilus advanced to the demonstration of the origin and course of the nerves from the brain and spinal cord,[36] and described many of the parts of the brain, including the meninges; and he it was who recognised this noble member—hitherto regarded merely as a refrigerator for the inward heat—as the source of sensation and of volition. On his description of the liver, pancreas, chyle-vessels, and many other members, descriptions new in part, in part enlargements of previous knowledge, I cannot now dwell; but to his views of the circulation I shall return presently, when we come to discuss the pulse lore of this period and of the Roman pneumatists. Herophilus probably described the anatomy of the eye, as we know from Aetius that he wrote a treatise Περὶ ὀφθαλμῶν. To this great and precise observer Galen was deeply indebted; yet these Alexandrian anatomists never cleared up the confusion under the name *νεῦρα*. They still regarded nerves and tendons as varieties of one kind; varieties because they perceived that the nerves came from the brain and spine, but the tendons from the bones and muscles.[37] As a physician Herophilus, in opposition to Erasistratus, clung to the four humours of Hippocratic tradition, and opposed him furthermore in matters of pharmacy, dietetics, and hygiene; subjects with which he dealt at large in a work Περὶ αἰτιῶν.[38]

It would have been well if medical science could have continued patiently on these more positive, although it must be confessed still somewhat nugatory, methods. It has been the trial of Medicine that while, as compared on the one hand with the no less complex but far more accessible phenomena of politics, and on the other with the far less complex phenomena of the physical sciences, it has stood in respect of the difficulty and inaccessibility of its knowledge, and stands still, at an enormous disadvantage; yet, in no unnatural impatience with these perennial bafflings and obscurities, the moan of suffering men and women and the poignant misery of the child have ever driven us into action, however blind, however premature. Remedies, orthodox, empirical or quackish, remedies one way or another, and by whatsoever means, have always been imperiously demanded of us. And, as nowadays the modern physician cannot wait for pharmacology which seems to him, and not untruly, to be the tortoise behind the hare of empirical practice, so after a like manner we may imagine the impatience of Alexandrian physicians and sick with the pursuit of anatomy. Except in respect of surgery, the lost anatomical treatises of Herophilus himself could have contained but little of any immediate application to inner medicine. Such then in the middle of the third century B.C. was the ground in which, in spite of its scientific spirit, or perhaps engendered by it, empiricism and medical infidelity would readily spring up and, gyrating in the void of positive knowledge, would, and did, give rise to weary and endless disputes and logomachies—*Federkriege*, as Susemihl calls them. Professing much reverence for Hippocrates, physicians broke loose not only from anatomy but also from the Hippocratic rational sagacity. In the third century B.C., as we learn from that earliest essay in medical criticism the Preface of Celsus, and from other sources, Philinus of Cos,[39] the reputed founder in Alexandria of the Empirical School, and Serapion, who harshly straitened it, instituted the schism in which walked with more or less discernment their eminent successors, such as Apollonius of Antioch, Herakleides of Tarentum (whom Soranus calls the most persuasive of them all), Menodotus, and Sextus Empiricus.

Towards the end of the second century B.C., under the evil rule of Ptolemy Physkon, Alexandrian science began to dwindle. Hipparchus, who had flourished about the middle of that century, was the last of the great originating minds. Then the disinterested search after knowledge for its own sake dropped into an industrious and respectable assiduity; as into the technical furtherance of the crafts, especially of agriculture. Accordingly, we find then the beginnings of those summaries and compilations which, admirable as they were in Varro and Celsus—two of the most scientific of the Romans—dogged the retreating footsteps of Urania. Thus the field was left open for astrological phantasies and for marvels of zoology which began to creep in from the East, and, flourishing in Aelian, spread themselves through the bestiaries and herbles of the Middle Ages.

After this introduction concerning the history of the Pneumatist idea, it is convenient to illustrate its application to Medicine by some story of the chief medical teachers of the pneumatic school so far as we know them. However far-reaching, even perennial, as was the pneumatic doctrine, I repeat that pneumatism, as a medical sect, was of brief duration; and for the most part its adherents are now no more than names to us. I propose therefore to speak more particularly of two only—of Athenaeus, the formal founder of this school in Rome, and Archigenes, who, if an Eclectic, came forth from the Pneumatist School.

ATHENAEUS.

Athenaeus was one of the most interesting of the Romano-Greek physicians; Diels, in his essay on the physical system of Straton, emphasises the doxographical importance of Athenaeus, who nevertheless adopted and formed his opinions with much critical judgment. As to his date, Athenaeus of Attalia, who, like most of the Roman physicians, emigrated thither from the colleges of the wealthy Hellenic cities of Asia Minor, was unknown to Celsus, who lived in the days of Tiberius and to whom Methodism was known; but his works were well known to Galen, who cites him frequently and in terms of much respect as an author and *savant*. We may assume then, if perhaps he was born under Tiberius, that he flourished in the reign of Claudius. Athenaeus seems to have perceived how Methodism, in the sense of the atomic physiology, was even then withering; in practice it had dried up into two or three abstract maxims or common rules (*κοινότητες*); whilst its Epicurean philosophy was giving way in Rome to Stoicism. Thus intelligent men felt something more was wanted, and pneumatism, coming as it did in the tradition of the elder medicine—Sicilian, as we have seen, as well as Coan and Alexandrian—and in alliance with the ascendant stoicism, offered to fill the want. Athenaeus, therefore, had a large

[33] Strabo, xii., 580.

[34] That is speaking generally. Galen credits Diocles with some knowledge of anatomy, and there is reason to suppose that both this physician and Praxagoras, and so presumably some others, had dissected the human body. But in Alexandria there was an Anatomical Institute in which human bodies, as Galen says plainly concerning Herophilus, were dissected. (II. 895: "οὐκ ἐπὶ ἀλόγων ζώων καθάπερ οἱ πολλοί, ἀλλ' ἐπ' αὐτῶν τῶν ἀνθρώπων πεπονήμενος.")

[35] Much more evidence would be necessary to compel us to believe the malignant insinuation of Tertullian that these anatomists opened the bodies of living men (criminals). Such brutality not alien to the Roman was foreign to the Greek.

[36] Galen, viii., 212.

[37] Cf. Daremberg's edition of Rufus.

[38] A certain Heracleides Erythraeus, lauded by Galen, a contemporary of Strabo about the Christian Era (placed by error in Haeser I see in the third century B.C.; there were three or four physicians of the name) wrote a long treatise on the "sect" (*αἵρεσις*) of Herophilus, but unfortunately nothing of it remains.

[39] We have to regret our ignorance concerning this considerable person; almost all else we know is that he wrote glosses on his distinguished compatriot before Erotian. The Empirics boasted of an heretical descent from Akron of Agrigentum (fifth century B.C.), an eminent physician contemporary with Empedocles. It is not impossible that the hazy science of the Sicilian School may have instigated such a reaction, but we have no evidence of it.

school or following in Rome. Indeed, pneumatism, as we have seen, represented a physiological principle of a kind so attractive that, under the phases of many schools, it survived in its essence until the eighteenth century. Athenaeus wrote a large and important work, Περὶ βοηθημάτων, which probably dealt with all departments of medicine. Unfortunately, this work has almost wholly perished; for what we know of Athenaeus we are dependent upon some fragments surviving in Oribasius, and upon some allusions by other authors. These relics suffice, however, to indicate that Athenaeus was a clear and accurate observer, apt in reflection and criticism, and wise in philosophy. To these gifts he added a large and various learning spiced with a shrewd irony. Athenaeus, like such later pneumatists, or eclectic pneumatists, as Herodotus, Archigenes, Leonides, Heliodorus, was a good surgeon. Moreover, the school was not clinical only. Besides its considerable therapeutical content, it taught also (as in the Π. βοηθημάτων) an elaborate physiology and pathology which, within my present limits, I may be able to illustrate by a few references, especially by its teaching concerning the pulse.[40]

Athenaeus, who did much to weld together philosophy and practical medicine, apportioned the sphere or faculty of medicine into five divisions. The first was physiology, which for him was the essential foundation; and therein he made a great advance upon the methodists and the empirics. Of his next or second division, that of pathology, but little is known directly; yet we incur little error in interpreting the pathology of the master by that of his successor Archigenes. The main feature of his pathology, that upon which I would dwell for a moment, was the study of the causes of disease; for herein the school returned to the sounder tradition of Hippocrates, avoiding on the one hand the facile and jejune etiology of the methodists, and on the other the narrow concentration of the Empirics upon superficial and immediate antecedents. Of the logical classification of causes we read in Galen enough and to spare; and we of to-day in our array of causes are still somewhat given to outworn categories, such as the *predisposing*, the *exciting*, and so on. In Rome, from the time of Asclepiades, the sects which did not ignore the wider causes with moderation divided them into three classes at least, according to their nearness or remoteness in the series of antecedents. Thus Athenaeus did not expatiate in a wilderness of logical but unnatural categories. But the Pneumatists conveniently distinguished *aitia* from διάθεσις, by which they signified all which pertains to the conditions of the disease in the individual. Disease (νόσος) was the dyscrasia; πάθος was used variably as the lesion or as the functional disarray, fever, for instance, as abstracted from symptoms of fever.[41] Συμπτώματα were the consequences of the dyscrasia. The dyscrasia, a perversion of health (eucrasia)—the ancients perceived in these rhetorical antitheses substantial as well as verbal values—was for the genuine pneumatist a failing or taint of the pneuma, and to be counteracted by marshalling against it the contrary quality—as cold against fever, and so on; so that, as we shall see, physical means of cure prevailed with this school, such as diet adapted to the several seasons, clothing, exercises, waters, and so on. The fusion of their vitalistic pathology with the humoral, which for clearness' sake we are disregarding in this lecture,[42] was in its completion the task of Galen. By him the soul, or vital dynamic, in its three kinds—the natural, the animal, and the psychical soul—and the qualities of the elements were harmonised so far as logic could harmonise them; for instance, phlegm was akin to moisture, yellow bile to fire, black bile (spleen) to earth, and so on, the qualities being mixed in the blood. But it would be futile to enter farther into these logical permutations; I have said enough to give a notion of their method. It is, perhaps, more interesting to perceive how in certain ways Athenaeus and the pneumatists went back to Hippocrates. Thus I have touched upon their observation of climates and waters. The third pneumatist division was Dietetics; then came Materia Medica; and fifthly and lastly Therapeutics, a title with a larger content than is usual with us, and almost signifying clinical practice.

GROWTH OF POLYPHARMACY.

The vast commerce of the Ptolemies, and in some measure no doubt the lore of Pharaonic Egypt, had flooded the markets of Alexandria with quantities of new drugs. One writes to a friend to send him good quality of drugs "lest he do otherwise and send him stale stuff which will not pass muster in Alexandria,"[43] &c., and the keen inquiry for them was far more than the legitimate demand of the medical practitioner. For with the treatise of Theophrastus Περὶ τῶν δακετῶν καὶ βλητικῶν, as one may approximately say, began the prodigious and diabolical literature on the art and mystery of poisons and antidotes in which, not always without the aid of medical accomplices, kings and nobles of the empire and its principalities, and after them popes and cardinals of the Church, were the experts. And, indeed, the bent of the Herophileans, onward to Galen himself and the Galenists (Andreas, Krateuas, Apollonius Mys, Zopyrus), was to polypharmacy. In the decadence of Alexandrian science and society this gross propensity increased and multiplied; and under the influence of perfidious potentates, such as Mithridates,[44] Nicomedes, and Attalus, attained to an almost grotesque infamy. Under the foul accumulations of panaceas, mithridatics and cosmetics, elaborated with a perverse and loathsome ingenuity,[45] medicine was oppressed and almost suffocated; and the habit of heaping up ingredients made its way into the compounding of legitimate prescriptions. Thus to build up a huge and conglomerate bolus or potion became the ambition of the doctor, and the faith and consolation of the patient. If your liver is getting impatient, writes Juvenal in the XIIIth Satire, "seek Archigenes as fast as you can, and buy of him the composition of Mithridates, and you will live to eat figs and gather roses another year."[46]

THE TRAUMATIC NEUROSES.

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I USE the term traumatic neurosis in a limited sense, to embrace only neurasthenia and hysteria resulting from a traumatism, either by reason of the physical injury or the emotional disturbance that may attend it. Other neuroses, as insanity and epilepsy, which more rarely follow shock, are, therefore, not included in the term.

Erichsen in 1864 described the nervous troubles that at times follow accidents, and as these disorders frequently succeeded casualties on railways the term "railway spine" came to be generally adopted for them, the condition being ascribed to slight lesions, leading to chronic inflammation of the spinal cord or its membranes. Westphal and Leyden adopted the same view.

Russell Reynolds was the first to recognise the functional nature of the symptoms of the so-called "railway spine," for he held that the troubles of sensibility, the motor paralyses and spasms, were "dependent on idea." Oppenheim and Thomson adopted Reynolds's view and invented the term "traumatic neurosis," affirming that the nervous disturbance excited by injuries was of a definite and specific character. Two American physicians, Walton and Putman, pointed out that the symptoms of railway spine were indicative of cerebral rather than spinal disturbance. They therefore held that the term "railway brain" was more appropriate than "railway spine"; at the same time they regarded the cerebral symptoms as largely functional and akin to those of hysteria.

It was the more pronounced consequences of traumatisms

[40] In what follows I am indebted especially to Daremberg's Oribasius and Rufus, Wellmann's article on "Philumenos Hermes," 1908, and on "Ancient Medical History," Hermes, 1900, and continually, of course, to his "Essay on the Pneumatists." Nor must our general debt to Diels be forgotten.

[41] Herophilus pointed out that certain πάθοι might be natural (κατὰ φύσιν), such as childbirth or the secretion of milk; others unnatural (παρα φύσιν), such as fever. Still πάθος was often used in equivalence with νόσος, especially perhaps by the methodists (e.g., ἡ παθητικὴ στέγνωσις, &c.).

[42] We find the humoral pathology as far back as Herodotus, who tells how (IV., 187) the Lybian shepherds used to burn the veins on the vertex or temples of their children to prevent fluxions of rheum (κατάρρεον φλέγμα).

[43] Milligan, Sel. Greek Papyri, 1910, p. 58.

[44] The locus classicus of this treacherous lore is the twenty-fifth chapter of Pliny (N.H.). Krateuas probably worked under the patronage of Mithridates (cf. new ed. by Wellman, 1897).

[45] Among many other such books see Das Gift in der ..... antiken Literatur. By Dr. Erich Harnack of Halle. Leipzig, 1908.

[46] We note here that Archigenes sold the remedies himself.

that attracted the notice of all these observers—the hysterical spines and joints and the paralyses; the less evident result of nervous shock—neurasthenia—was at this period overlooked. Hence the victims of traumatic neurasthenia were likely to meet with little consideration.

Herbert Page[1] in 1885 was the first to recognise that traumatisms might be followed by symptoms of neurasthenia as well as by those of hysteria. Charcot in 1888 confirmed these conclusions, and by clearly differentiating the various symptoms of hysteria and neurasthenia rendered it possible to attain precision in the diagnosis of these affections. He also demonstrated that Oppenheim's traumatic neurosis was in no sense a specific affection, but that its symptoms were identical with those of hysteria and neurasthenia in combination.

The term traumatic neurasthenia is, in my opinion, frequently misused, not only by medical witnesses but by medical writers, it being applied to cases where the symptoms of hysteria are associated with, and perhaps preponderate over, those of neurasthenia. Its use is, perhaps, legitimate in a court of law, as the word neurasthenia has come to be recognised by lawyers as indicative of a definite disorder produced by accidents, and, on the other hand, the term hysteria to the unprofessional is suggestive of malingering.

The neurosis excited by traumatisms is usually a hystero-neurasthenia, and to overlook this fact is unscientific and leads to the confusion of the characteristics of the two diseases, inasmuch as symptoms are set down to neurasthenia which do not belong to the affection. For example, a recent writer on "traumatic neurasthenia" states that in this disorder the fields of vision are almost always restricted, the knee-jerks exaggerated and the plantar reflexes absent—all diagnostic signs of hysteria and not of neurasthenia.

In neurasthenia the symptoms are almost entirely subjective, and therefore capable of being feigned. Their value as indications of disease depends largely on the estimation formed of the veracity of the individual under examination. In such circumstances it is only likely that the opinion of medical witnesses on opposite sides should be at variance. In hysteria, however, there are many objective signs ready to be brought to light on careful examination—stigmata that furnish evidence of a decisive and positive character.

Genuine cases of traumatic nervous trouble, in the absence of careful clinical investigation, may not be treated with due consideration, and especially is this likely in the absence perhaps of all signs of physical injury or of any appearance of ill-health; for in these circumstances a suspicion is awakened in the minds of lawyers and juries that the sufferings and incapacity are mythical—a suspicion which is strengthened if it should appear that the litigant is capable of seeking diversion but not of resuming work.

It is the duty of a medical witness to search for any indications of disease that may be present, to note whether the statements of the individual under examination are consistent or otherwise. To conduct such an investigation intelligently he must be familiar with the features of the neuroses under consideration. I need hardly say that the medical witness should confine his evidence to facts. He should neither belittle symptoms nor exaggerate them; he should not become a partisan or a special pleader, nor allow sympathy to bias his judgment. Owing to the difficulty that is usually experienced in estimating the exact extent or possible duration of the incapacity in any case, should such exist, there is room for difference of opinion among medical witnesses—a disagreement which is made more divergent under skilful cross-examination.

Some physicians hold that neurasthenia, like hysteria, is a purely psychical malady—a disease of imagination. Dejerine and Dubois adopt this view. Bernheim, too, considers what he calls "false neurasthenia" to be of similar origin. It seems, however, unnecessary to invoke psychic intervention to account for the phenomena of neurasthenia when in every instance the disorder is found to be produced by such causes as the depressing emotions, overwork, dyspepsia, exhausting illness, and intoxications tending to lead to nervous exhaustion. Moreover, in so far as the muscular system is concerned the impairment of energy has been demonstrated by the use of the ergograph and by the experiments of Münsterberg.[2] Granting that these affections are disorders of imagination, it is illogical to conclude that the victims of a traumatic neurosis are impostors; surely the position adopted by G. Braun[3] is unwarranted: "That which in medico-legal work is called a traumatic neurosis would be regarded in ordinary life as a fraud."

The symptoms of neurasthenia and hysteria, whether they follow fright or injury or are developed in some other way, are equally characteristic, and these characteristic symptoms are met with as a consequence of traumatisms, whether the subjects of such traumatisms are or are not seeking compensation. It is hardly necessary to insist on this point, but I may refer to one case. A foreman in a foundry was struck on the forehead and knocked down. He got up and though suffering from headache and nausea remained at work. Fourteen days after, as he continued to feel ill, he consulted a medical man who advised rest and sent him to a hydropathic establishment for baths and massage. He derived little benefit and at the end of three weeks returned to work. When I saw him seven months after the accident he was suffering from pronounced neurasthenia, with a very irregular pulse and palpitation. With the exception of the brief holiday mentioned, he had not absented himself from his duties, nor had he thought of claiming compensation.

Hysteria, indeed, originates in auto-suggestion, and the associated physical troubles are due to the projection outwards of psychical images. The physical phenomena are, therefore, dependent on the mental state. On the contrary, in neurasthenia—if we accept the ordinary theory of its nature—the mental attitude is the reflex of the physical condition. For example, the muscular weakness gives rise to the sense of fatigue and repugnance to effort. The disturbances involving the organic functions being reflected on the brain occasion sadness, weariness, pessimism, and vague ideas of impending trouble. Although auto-suggestion may give to neurasthenia the aspect of hysteria it is in its essence a physical rather than a psychical malady. In non-traumatic cases of neurasthenia and hysteria we are generally able to trace a predisposition in the family history, in indications of a tendency to rheumatism, gout, tuberculosis, intemperance, or to functional or organic nervous diseases. In traumatic cases, however, great difficulty is usually met with in obtaining a reliable family history. I have suspected that intemperance in the parents might in many instances explain the exceptional vulnerability of the nervous system, but have failed to satisfy myself that such was the case.

The same difficulty is met with in regard to the personal history when seeking for evidence of a neurotic tendency, the victim of an accident usually asserting that he had never been ill before he met with the accident. I noted the signs of hereditary degeneracy in 8 out of my 40 cases—in jug-handle ears, asymmetry of face, and poor physical development in other directions. The man whose case I have just referred to had a congenital squint with defective vision of one eye, ill-developed ears, and irregular teeth. I had seen him with Dr. C. J. Mouncey of Earlestown eight years previously for idiopathic dilatation of the stomach and neurasthenia. At the time of the accident he had been well for some years.

A predisposing cause is probably often to be found in a weakened nervous organisation, brought about by the abuse of tobacco and alcohol, and further exhausted by unhealthy or arduous occupations and unhygienic surroundings. Some idea of the frequency with which the traumatic neuroses follow accidents may be obtained from the statistics given by Dr. R. J. Collie in a paper on the Workmen's Compensation Act, 1906. In 458 cases of accidents referred to him by the London County Council, he met with 24 cases of traumatic neurasthenia—a comparatively small number, and in its paucity emphasising the fact that some other agent besides the shock of an injury determines the development of the neurosis in question. This other contributory cause is predisposition. The severity of a traumatic neurosis, as a rule, bears no relation to the extent of the lesion that preceded it, its intensity depending rather on the constitution of the victim of the accident, and on the degree of emotional shock attending it.

[1] On Injuries of the Spine and Spinal Cord without Apparent Mechanical Lesion.

[2] See Psychologie des Neurasthéniques, Dr. P. Harlenberg, p. 28.

[3] Prager Medizinische Wochenschrift, 1907, and the Medical Chronicle, July, 1907.

Emotional disturbance probably plays a more important part in the production of the traumatic neurosis than physical injury. A depressing emotion, such as terror, may in itself give rise to a hysteria or neurasthenia, and instances are not infrequently met with where these disorders have been excited by accidents which, though trivial, have occasioned much apprehension.

Sometimes the victims of violence cannot experience any emotion before or at the time of the accident: it is too sudden. Take, for instance, the case of a man who is instantaneously rendered unconscious by a blow on the head from a falling hammer. In such instances emotional disturbances in the form of worry and anxiety operate after the infliction of the traumatism, their pernicious action being increased in the event of sleeplessness and pain. Nervous shock produced by fright cannot operate when the injury is unexpected and causes sudden insensibility; and yet blows on the head are, I think, more often than other forms of injury followed by functional nervous trouble.

The most severe cases of hystero-neurasthenia that I have recently met with have followed blows on the head. One man fell off his bicycle on his head 18 months ago and was unconscious for three weeks. He is now, in spite of hospital treatment, a confirmed hystero-neurasthenic and quite disabled. The other, a patient of Dr. W. Macvie, besides an injury to the head suffered also from a broken arm and leg; he has been utterly disabled by hystero-neurasthenia since June, 1907. Traumatic neurasthenia is more frequently met with in men than in women, and this is due to a large extent to the fact that the former are more liable to be accidentally injured in their occupations. At the same time, this difference in the character of the work of the two sexes does not altogether account for the prevalence of this semi-hysterical condition in males, for it has been noted that in a general catastrophe affecting a number of people the men will suffer in a greater proportion than the women. It seems also to be a fact that while working men after injuries are especially liable to suffer from hystero-neurasthenia, men engaged in professional or mercantile occupations are more prone to be attacked by simple neurasthenia.

When an injury is severe the nervous symptoms may be manifested immediately—by excitement, insomnia, nightmare, headache, tremors, emotional disturbance, and digestive troubles; in short, by what might be called acute neurasthenia. In individuals with stable nervous systems recovery takes place in a few days; in others of neurotic temperament, after perhaps a period of temporary improvement, the nervous manifestations return with greater or less intensity. When the traumatism has been slight, the victim of the accident may experience few symptoms of depression immediately after it, perhaps only vague pains and some weakness of the legs and slight insomnia—nothing to prevent him continuing his occupation. At the end, however, of a few days or weeks, or perhaps months, progressively or rapidly the symptoms characteristic of a traumatic neurosis appear, and a state of invalidism becomes more or less established.

The period of time extending between the receipt of the accident and the development of the neurosis has been termed by Charcot the "period of meditation." According to certain German authors referred to by Guion [4] this period may be prolonged for years; instances are given by these writers and by Guion where hysterical paralyses have developed in soldiers who had received wounds in the Franco-German war at periods varying from 2½ to 15 years after these injuries. Such deliberation in the appearance of traumatic injuries is almost incredible. In my experience the interval between the accident and the onset of the neurosis depending on it is seldom prolonged over two to three months. But, as Guion observes: "If during the long period which separates the traumatism from the hysterical explosion no other incident intervenes which may be invoked as the originator of the affection, then it is only natural to incriminate the traumatism."

From a medico-legal point of view a delay of even a month or two is of moment. For example, an individual meets with a more or less grave accident and receives an indemnity proportionate to the duration of his incapacity and returns to work. Subsequently, however, a traumatic hysteria assails him. This new and more serious trouble is only another effect of the accident, but in the present state of the law he is entitled to no further compensation, though he may be disabled for months or even possibly life. Railway and other companies in their own interests are therefore wise in seeking to settle claims made against them for damages as soon as possible. Finally, an individual under treatment for some disabling traumatic lesion may gradually become neurasthenic, and neither he nor his medical man recognises the nervous weakness until he attempts to resume work.

A traumatism may be followed by a pure neurasthenia or hysteria or by a hystero-neurasthenia; in the latter case the more precocious nervous manifestations are, as a rule, neurasthenic. When the individual is not destined to remain neurasthenic it may be a month or two before the earliest signs of hysteria appear, its advent being sometimes announced by a major or minor hysterical fit, the latter more commonly, the victim having what he calls "a fainty attack." On inquiry such a seizure will probably turn out to be not syncope, but a crisis characterised by palpitation, rushing sensations in the head, oppression of breathing, constriction of the throat, tremor, and emotional disturbance.

As stated previously, a traumatic neurosis most frequently takes the form of a hystero-neurasthenia. In this disorder the signs peculiar to each affection may be distinguished.

Neurasthenia, whether it occurs alone or in association with hysteria, betrays itself by its characteristic cranial discomfort, sensations of pressure or emptiness, or other abnormal feelings, heavy pain in the occiput or various parts of the cranium, aggravated by physical or mental effort, pain in the back, especially over the lower vertebræ and sacrum; often also a feeling of stiffness which retards free movements; and insomnia. There may be a difficulty in falling asleep, or sleep may more or less readily set in, but pass off in an hour or two, leaving the individual a prey to insufferable restlessness and fidgetiness, aggravated by tinglings in the limbs; there may also be any or all of the following: vertigo, tinnitus, and neuro-muscular asthenia, asthenopia, sexual weakness, circulatory disturbance, increased frequency or irregularity of the pulse, palpitation, spurious angina, vaso-motor irritability, atonic dyspepsia often associated with flatulence and constipation. The mental troubles are many and marked: on the emotional side there are sadness, weariness, and pessimism; repugnance to effort, abnormal irritability, defective control of temper, tendency to weep on slight provocation, timidity. On the intellectual side, lessened power of attention, defective memory and will power. The patient or his friends will say that since the accident he is an altered man. He has become inert, morose, and ill-tempered.

The objective symptoms, if there are any, are few and obscure. In a marked case the subject looks dejected and stupid; he stoops, and his gait and movements are sluggish; his speech slow and halting. The pupils may be dilated, and in very rare cases unequal; this condition was present in one only of my cases. The pulse may be quick, and often it is too readily accelerated. There is in some instances slight unsteadiness on standing with closed eyes. In others there is an abnormal tendency to flushing and sweating.

The emotional depression and the intellectual asthenia and the failure of will power tend to lead the neurasthenic to be possessed with doubts and fears. But the phobias of traumatic neurasthenia rarely reach the intensity of those found in congenital neurasthenia or of those common in hereditary degeneration. Moreover, the emotional depression renders neurasthenics liable to auto-suggestion; hence it is that hysteria so frequently complicates the disorder, and particularly in its traumatic form; for the working-man who is disabled is without any resources of distraction in himself, and frequent interviews with lawyers and medical men lead him to dwell on his injuries and symptoms.

Pure traumatic neurasthenia, as Oppenheim asserted, differs in some degree from the disease in its ordinary form. The victims of the disorder, even when educated, are not scribblers; they do not bring written descriptions of their troubles; unlike the ordinary sufferer from nervous exhaustion they do not chatter about their ailments. This taciturnity is embarrassing to the examiner, since leading questions have to be avoided. The patient is also easily annoyed and seems to look on the medical man with suspicion, even when he has been sent to him by his own

[4] Les Agents Provocateurs de l'Hystérie.

solicitor. He often, too, is worried by intellectual asthenia and emotional weakness, rather than by the indigestion, palpitation, and the other physical troubles of ordinary neurasthenia.

When I was a student neurasthenia was not recognised, and hospital patients who exhibited no signs of organic disease or of some familiar nervous disorder were usually set down as malingerers. With increased knowledge we now take a more humane and rational view of these cases, but as our diagnosis of pure neurasthenia largely depends on the statements of the subject under examination and not on objective signs, we have to guard against deception. In forming an opinion as to the veracity of an individual we are guided by the consistency of his statements, whether the description he gives of his troubles harmonises with the general features of neurasthenia; the clinical signs of this affection are remarkably uniform, and the truthfulness of a litigant may be tested by suggesting improbable symptoms. In doubtful cases more than one examination should be made and the reports of the different interviews compared. Some allowance, however, should be made for a little exaggeration, for, as Dubois observes when discussing the nature of neurasthenia, "around a nucleus of real fatigue there is a coating of imagination." The individual who goes to bed dominated by the idea of sleeplessness will remain awake. The man who thinks he can only walk a certain distance will not do much more. The idea of impotence increases the disability.

To the ignorant and prejudiced employer it seems incredible that a workman should be able to hang about the streets and not be fit to resume his occupation; but the fear of returning to work may be very real. We recognise the occasional presence of phobias, which may prevent an otherwise strong and capable man from following his occupation. Take this instance. A gentleman who had been a keen man of business, after a spell of overwork is attacked with anxiety neurosis—he dreads to go out alone and to go to business, but he eats and sleeps well, and with a friend can spend hours at a skating rink. Such a condition is unaccountable, but its reality is accepted because there can be no motive for deception. In the case of the working man claiming compensation there may be an inducement for simulation, but such a possibility should not provoke a hasty judgment. It is only just, to recall that in neurasthenia, owing to the abnormal introspectiveness which is one of its characteristics, there is a tendency to the unintentional exaggeration of symptoms, and, moreover, as I have stated, there is a liability to the development of phobias—to the generation of the "anxiety neurosis," the subjects of the disorder frequently asserting that they have "lost their nerve," that they have a terror of scaffolds, ladders, machinery, and of noise and bustle. With timidity there is usually infirmity of purpose, arising from failure of will power, as there is intellectual as well as physical weakness. Aches and pains are often associated with the muscular and mental asthenia, and these will be aggravated by effort.

As to simulation, I have only met with two malingerers in five years. Dr. Collie, in the report before referred to, found only 31 malingerers in 2658 official examinations of cases of diseases and accident. Taking traumatic neurosis only, Bouveret states: "I think complete simulation is very rare and constitutes only a very small exception. Exaggeration is more frequent than simulation." Oppenheim is of opinion that malingerers only occur in the proportion of 4 per cent. Strümpell, Schultz, and others are of Bouveret's opinion.

In hystero-neurasthenia the association of hysteria with neurasthenia not only leads to a modification of some of its symptoms, but to the interposition of others. To the insomnia of neurasthenia are added the nightmare and terrifying dreams of hysteria—the defects of memory become more pronounced. Neuralgic headache takes the place of duller pains and cranial discomfort, and similar acute pains are likely to be experienced in other parts. Associated with these symptoms are objective signs of great moment—the somatic stigmata of hysteria. I will refer to a few of them only. Fine tremor of the closed eyelids and perhaps of the hands, the former very constant. Modifications in the sensibility of the skin, even when partial, are very significant, as in analgesia or hypæsthesia of a part of the forehead or of the back of the forearm. Electro-anæsthesia is particularly common also—the interrupted current, applied over certain areas, causing no appearance of discomfort, but over others giving rise to expressions of pain. Concentric restriction of the visual fields. Modifications of the fields for colour vision; the field for blue reduced, and inside that for red. Asthenopia, amblyopia, defective perception of the size of objects—macropsia and micropsia; a victim of traumatic hysteria I recently examined mistook with one eye a sixpenny bit for a five-shilling piece. Defective senses of taste and smell. As regards the latter, the fifth nerve is in some cases involved as well as the olfactory, for I have found in these instances that strong ammonia held under one nostril has given rise to no evidence of discomfort, while under the other it has excited exclamations of pain. Defective reflex of the soft palate, exaggeration of the knee-jerks, spurious or genuine ankle clonus, with absence of the plantar reflex. Moreover, there is often a history of terrifying dreams, of failure of memory, occasionally presenting peculiar features. In one of my cases sudden loss of memory caused the subject of the accident frequently to lose his way when out in the streets. There may also be much talking and starting in sleep, and evidence of minor hysterical attacks—the so-called "half-faints."

Dr. Larat has recently[5] described a new, and in his opinion a pathognomonic, sign of traumatic neurosis in a peculiar electro-muscular reaction in which the contraction excited by the positive pole equals or exceeds that by the negative pole, A.C.C. = K.C.C. or A.C.C. > K.C.C., the current used = 10 milliampères. I have not repeated his experiments.

It might be asserted that the subject of a hystero-neurasthenia was hysterical before he met with an accident, and it is possible, but hardly likely, as the victims of this disorder are generally men.

Bernheim and his school, represented by Dr. P. Blum and Dr. Amselle,[6] deny the existence of interparoxysmal hysteria with its numerous stigmata. They hold that these stigmata are not peculiar to hysteria, that they can exist without any other nervous manifestations, and that they are produced by auto-suggestion, either because the subject amplifies organic sensations due to associated disorders or to suggestion acquired through medical examinations or in some other way. Further, they state that the psychical stigmata do not exist—that the mental state of the hysterical is in no way characteristic. They would limit the term hysteria to the paroxysmal attack—the crisis—its ancient signification; such attacks, they hold, do not constitute a disease but a morbid psycho-dynamic reaction. The unduly excitable persons liable to this reaction they term "hysterisable."

Babinski[7] adopts similar views, but would make susceptibility to suggestion the characteristic of hysteria. Dr. Pierre Janet, in his admirable description of the hysterical stigmata, supports the views of the Salpêtrière School.[8]

My experience, extending over many years, convinces me of the existence of normal hysteria and of its stigmata. In searching for these stigmata I have exercised the greatest care to avoid doing or saying anything which might give rise to suggestion. In most instances, too, the subjects examined by me for the hysterical stigmata had not been subjected to a similar mode of investigation before. Tremor of the closed eyelids has often suggested to me the probability of the existence of hysteria; the sensibility of the skin has then been tested by pricking. The eyes being still closed, it is well to begin with the left side of the forehead or the back of the left forearm, and then, nothing being said, to test in a similar way the corresponding parts on the opposite side, and note the expression of the patient, for his demeanour is usually sufficient to indicate to what extent the prick is felt or occasions discomfort. A pretty strong faradic current applied to one part may excite a cry of pain, while over the corresponding area on the other side it gives rise to no such demonstration.

I have analysed the cases of traumatic neuroses which I have seen in my consulting-room during the last five years. I

[5] La Presse Médicale, Dec. 8th, 1909.

[6] De l'Anesthésie Hystérique, Revue de Médecine, Bernheim. Conception du Mot Hystérie; Conception de l'Hystérie, Amselle. De Anesthésies Psychiques, P. Blum.

[7] Journal de Pathologie Interne, 1905.

[8] Les Névroses, par le Dr. Pierre Janet, 1910.

select these, because at home I have had the appliances necessary for thorough examination.

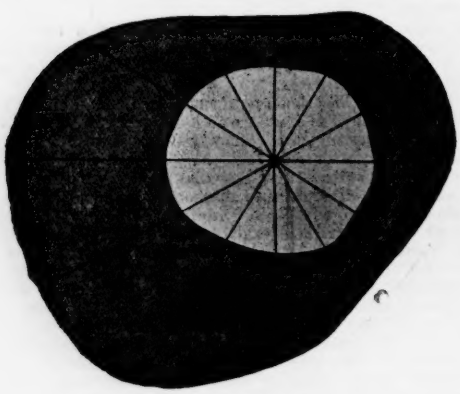
I find that the cases of traumatic neuroses are 40 in number; 23 of these are cases of hystero-neurasthenia, 13 of neurasthenia, and 4 of hysteria. 22 of the 23 traumatic hystero-neurasthenia cases were labouring men. Six of the 13 neurasthenia were persons of a better class injured in railway accidents. Of the 4 hysterical cases, 1 was a boy, another a girl, and the 2 others young men. In this return I have not included 2 cases of epilepsy and hystero-neurasthenia caused by blows on the head, nor 1 case of tabes and neurasthenia set down to a fall but probably due to other causes.

As to prognosis, cases of traumatic neurasthenia and mild hystero-neurasthenia, as is generally recognised, manifest a disposition to recover when they obtain compensation or damages, but the more severe hystero-neurasthenic cases do not exhibit the same tendency. I know cases where the disorder has continued from one to three years, and another, a case of traumatic neurasthenia, which lasted ten years. Oppenheim, in 33 cases of hystero-neurasthenia, met with 6 cases only of improvement, and Hodges 12 cases of recovery in 21. Bouveret states "that all observers are unanimous in affirming the gravity" of this disease. Vibert considers that the prognosis is grave when there is great mental depression, anxiety, tendency to weep, loss of memory, confusion of ideas, and profound change of character, accompanied by loss of strength and emaciation. According to the same author, the general development of the cerebral symptoms after some weeks' delay is another unfavourable sign. It is evident, therefore, that in the severer forms of traumatic neurosis, positive and unguarded opinions are to be avoided.

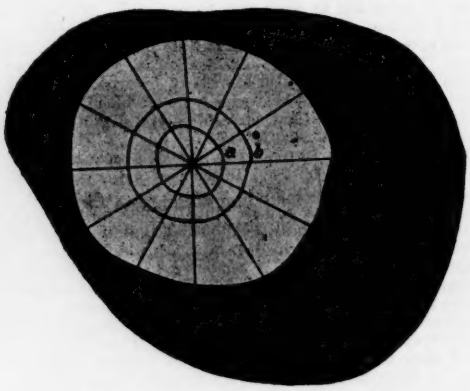
Analysis of the Remaining Cases of Hystero-neurasthenia—22

Tremor of closed eyelid	19
Generalised tremor	6
Defective sensibility of the skin sometimes limited to one-half of the forehead or the back of the forearm	20
Defective sensibility of the mucous membrane of the tongue, cheeks, or conjunctivæ	20
Electro-anæsthesia (but this test was omitted in some instances)	15
Defective sense of taste and smell (articles used, syrup and bisulphide of carbon)	16
Strong ammonia under a nostril not noted	4
Restriction of the visual fields (in one instance the vision was central only)	22
Achromatopsia	10
Asthenopia	6
Diplopia	3
Macropsia	1
Deafness	3
Knee-jerks exaggerated and plantar reflexes absent	18
Ankle clonus	4
Some unsteadiness, standing with closed eyes. (The less valuable psychical stigmata were present in many instances)	7
Very positive defects of memory	5
Tendency to sleeplessness	19
Terrifying dreams	14
Talking and starting in sleep	6

The significance of the somatic stigmata—the defects of sensibility—is increased by the fact that they are either limited to one and the same side or more marked on one side. I recently examined a man with traumatic hystero-neurasthenia in whom there was general and complete anæsthesia; no evidence of pain was manifested on thrusting a needle through the tongue nor on the application of faradic and galvanic currents, intense enough to cause tetanic contraction of the muscles.



Left field.



Right field. *a*, field for blue. *b*, field for red.

(Inserted by permission of the Editor of the Liverpool Medico-Chirurgical Journal.)

I can only give particulars of one typical case of hystero-neurasthenia. I have analysed the symptoms presented by my other cases of this disorder with the view more particularly of indicating the frequency with which objective symptoms were met with, rather than to denote the comparative prevalence of the various hysterical stigmata.

A man, aged 28 years, was, while writing, struck on the head by a falling shutter and rendered unconscious for some hours. I saw him 13 months after. He had never returned to work, as he complained of general weakness, depression of spirits, loss of energy, defective memory, and tendency to sleeplessness. I found left hemianæsthesia and electro-anæsthesia, loss of sense of smell (bisulphide of carbon not being recognised held beneath left nostril; strong ammonia also in the same position caused no discomfort). Loss of taste for syrup on left side of tip of tongue, much restriction of the visual fields, inversion of the fields for red and blue (see charts) absence of palate reflex, ankle clonus, and plantar reflexes absent. He was liable to certain fits; they commenced with palpitation, a rushing sensation in the head and noise in the ears; he struggled and lost consciousness for some minutes. On coming out of an attack he clenched his fists, stiffened his legs, and arched his back

Liverpool.

DESMOID TUMOURS.

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IT is well recognised that fibrous tissue tumours, known as fibromata, may arise from any structure in the body where connective tissue is to be found, those arising from the fibrous tissue of the uterus affording perhaps examples *par excellence*. The term "desmoid," derived from the Greek δέσμος, and signifying something that has the characteristics of a ligament, is applied to such a tumour when occurring in the muscles or muscular fasciæ of the abdominal wall and

possessing certain clinical characteristics apart from fibromata occurring in other parts of the body. As several of these interesting tumours have come under our notice, a record of them is certainly justifiable, for not only are they uncommon, but, as the cases show, early recognition and free removal of such tumours may be the only means of preventing a fatal termination.

Of the seven cases that have occurred during the last few years, two are dead from the disease, one cannot be found, and the remaining four are well. One of these, however, underwent a second operation for recurrence of the growth seven months after the tumour was first removed. The separate case notes show that of the cases ending fatally one had a history of four operations, three of them being for recurrence of the disease, which eventually involved the hollow viscera in the abdominal cavity.

A striking feature mentioned in the literature is that nearly all of these growths occurred in women who had borne children and who not infrequently gave a history of difficult labour or of injury to the abdominal wall. Both Bidwell[1] and Harvey Stone[2] report cases in which the tumour was first noticed after the onset of pregnancy, and one of our patients (Case 1) noticed a swelling when she was six months pregnant. All the women had borne children, and one, indeed, twins, but nothing in their histories pointed to difficult labours, though a special attempt to establish this act was not made.

The tumours are never tender on palpation, except in the later stages, when the peritoneum is involved. They have no movement further than that communicated by the abdominal wall on respiration. They do not disappear—on the contrary, indeed, they sometimes become more apparent—when the patient raises the head and shoulders, so rendering the abdominal muscles tense. These two latter signs are common to all tumours of the abdominal wall. As these growths increase in size they tend to do so in the plane of least resistance, and if arising from within the rectus sheath, whether from the sheath or from the muscle itself, the tumour spreads longitudinally upwards and downwards, and will not until a late stage advance laterally and perforate the sheath of the muscle. When occurring in the oblique muscles they give rise to sausage-shaped tumours which lie obliquely or transversely.

Although desmoid tumours have such well-marked clinical features that when these are known mistakes can scarcely be made, it is noteworthy that one was diagnosed and sent up as an enlarged gall-bladder containing many calculi, as the tumour lay in the upper part of the right rectus muscle; while in a second case a diagnosis of multiple sub-peritoneal fibroids of the uterus was made, the tumour, a large one in this case, occupying the lower part of the right rectus muscle. In a third case a diagnosis of appendix abscess had been made, and in a fourth so many differences of opinion arose as to the nature and the proper treatment of the growth after consultation in a London hospital that the patient decided to come to Newcastle for the operation.

It must be remembered, however, that although the majority of cases occur in women they may be found in men. Our cases showed six women and one man. The growths must be distinguished from tumours originating within the peritoneal cavity, and adherent to the belly wall, and from those that have their origin primarily in the abdominal wall. Of these latter the most commonly met with is the gumma or deep-seated abscess.

Without heeding the clinical features a desmoid may be mistaken for an abdominal tumour arising from any of the hollow viscera, depending upon the site and shape of the tumour. For instance, if the tumour is rounded and situated over the upper half of the right rectus muscle a diagnosis of pyloric growth may be made. Of the tumours having their origin within the peritoneal cavity, and sometimes closely simulating desmoids, a chronically inflamed appendix which invades the region of, and is adherent to, the abdominal wall, forming a pancake-like tumour, is most commonly met with. A large desmoid undergoing myxomatous change may exhibit precisely the same features when situated in the right iliac fossa. These growths may exist for a long time before they show any great increase in size. In one case the tumour had been known to exist for three years before it began to grow seriously. They are in some instances first noticed during pregnancy, the increasing vascularity of the abdominal wall in pregnancy appearing to stimulate the tumour to more rapid growth, and thus bringing it for the first time to the notice of the patient.

On section, to the naked eye, these tumours show whorls of fibrous tissue similar to uterine fibroids, though the growing edge is often soft and pearl-coloured, and can be seen pushing its way through the strands of muscle. The microscopical appearance, if the section be taken from the growing edge of the tumour, will show spindle cells with but little fibrous tissue. At the centre, however, where the blood-supply is less active, fibrous tissue will be in excess. The changes undergone are mucoid, showing cysts, myxomatous change, fibrosis, and lastly, but to be distinguished from the above instances of degeneration, malignant change. This was the termination of Case 5, and it is owing to the possibility of such change occurring that immediately a tumour in the abdominal wall, however small, is discovered, exploration and microscopical examination should follow without delay.

Conclusions.—There are certain tumours—desmoids—originating in the abdominal wall, chiefly in the upper half of the rectus muscle, but also in connexion with the other muscles, which are of considerable clinical importance.

They are likely to be mistaken for growths *in* the abdomen, unless the possibility of their occurrence is remembered.

Their association with pregnancy is so frequent as to constitute more than a coincidence. Possibly traumatism, by muscle stretching or tearing, is of etiological significance.

A firm, but not tender, sausage-shaped tumour, possessed of some mobility, across, but not in the direction of the fibres of the relaxed muscle with which it appears to be associated, becoming fixed when that muscle is made tense, and occurring in a woman recently pregnant, is a desmoid tumour.

The treatment is to excise the growth at once, along with a free margin of the surrounding structures, including the peritoneum underlying it.

CASE 1.—A woman, aged 19 years, married; one child, aged 6 months. Admitted complaining of a swelling below the lower ribs on the left side on Sept. 4th, 1902. The swelling was smooth, very hard, and appeared to be connected with the upper part of the left rectus muscle and to be attached to the ribs. (The patient had noticed the swelling for three years.) Operation Sept. 4th by Dr. A. Parkin (who was then Mr. Morison's house surgeon). An incision was made over the mass, which was incised and found to be a growth in the rectus muscle and adherent to the ribs. The whole mass with the affected portion of the muscle and ribs was excised. The skin incision was closed with silkworm gut. The divided muscles were not sutured. The patient left hospital on the 12th healed. Pathological report: "Spindle celled sarcoma."

In December, 1901, a nodule was discovered in the scar and it was considered to be a recurrence. In May, 1902, she complained of pain and a mass could be felt in the margin of the scar near the ribs. She was not readmitted till March 15th, 1903, with a definite tumour in the upper third of the scar, conical in shape, about 1½ inches by 1 inch, not attached to the ribs. Operation (Mr. Morison) on March 27th. A vertical elliptical incision, including the old scar, was made into the peritoneal cavity in the middle line below the ensiform cartilage. The peritoneum just over the left lobe of the liver was invaded by the growth. The upper surface of the left lobe of the liver was roughened by adhesions, but there was no visible growth in the liver itself. The costal cartilages of the seventh, eighth, and ninth ribs were divided on the outer side, and the portion of abdominal and thoracic wall between this and the mid-line, including the tumour, was excised down to the middle of the upper half of the rectus muscle. In removing the attached portion of diaphragm an opening was made into the pleura and air was sucked in. The pericardium with the heart beating forcibly in it was exposed at the bottom of the wound. A piece of indiarubber sheeting packed down with gauze was used to occlude the hole into the pleura and the skin only was sutured over the gap. It was not possible on account of the size of the opening to make a more effective closure of it. The patient bore this formidable operation well and recovered with very little shock. The portion removed included an ellipse of scarred skin 3½ inches by 1½ and portions of three costal cartilages, the longest being 4 inches. The growth appeared to have extended towards the peritoneum between two ribs and projected against it by three knob-like processes. The peritoneum covering these was roughened but did not appear to be invaded by the growth, which had a definite capsule, except at one part where it was quite soft and brain-like and had burst. The remainder of the growth presented the appearance of a fibroma. Pathologist's report: "Spindle-celled sarcoma." The patient left hospital on July 10th.

Nine months later (April 8th, 1904) she was readmitted because she had noticed something coming back and it had caused her some pain. On examination there was a mass of growth occupying the remaining portion of the upper half of the left rectus muscle for about three inches and below the old scar, which was healthy. It was of interest to note how firm the abdominal wall had become from cicatricial tissue at the site of the extensive removal of all of its structures except the skin, for there was no hernia, and it felt strong. Operation on April 12th. The abdomen was opened in the middle line to the right of the tumour, which was then seen to be adherent by its deep surface to the

[1] West London Medical Journal, 1906, vol. xi.
[2] Annals of Surgery, vol. clxxxviii.

liver and to the omentum. After separation of the adhesions and gauze packing the growth was widely excised through a crucial incision. The abdominal wall was repaired as well as seemed possible by deep thick catgut sutures.

Four months later (August, 1904) the patient reported herself. She looked well and strong and there was no sign of recurrence. She was readmitted three months later (Nov. 7th) greatly changed, as she was now thin and looked anæmic and complained of pain coming on after food. On palpating the abdomen a deep mass was felt in the neighbourhood of the umbilicus adherent to the abdominal wall. Operation on Nov. 15th. On opening the abdomen the mass was found to be adherent to the abdominal wall and invading the stomach and duodenum. An attempt was made to remove it, and during this the growth was opened and a large mass of soft broken-down material came away. The lesser sac was now found to be filled by growth which presented through the gastro-hepatic omentum and the attempt to do a complete operation was abandoned. The visceral openings and the abdominal wall were closed by suture, and severe shock followed the operation.

The pathologist's report of the tumour was "spindle-celled sarcoma." The patient gradually recovered from shock, but died 13 days after the operation soon after the formation of a duodenal fistula. Post-mortem examination showed that all the visible growth had been removed, but that the lesser sac was full of it. There were no secondary deposits in the lungs or in any of the other viscera. The opening in the duodenum was in its first part on the upper surface just beyond the pylorus and was due to leakage from the part sutured.

CASE 2.—A married woman, aged 36 years; had had two children aged 1 and 8 years. Twelve months ago the patient accidentally discovered a lump in her right side. It was quite painless, and except for a slight pricking sensation caused her no inconvenience of any kind. The tumour had grown in size very little since it was first noticed, and on examination a large easily palpable tumour was found in the region of the gall-bladder and in connexion with the right rectus muscle. It was not tender and could be picked up and held between the finger and thumb. On Feb. 22nd, 1905, a vertical incision was made over the tumour, which was widely excised. The whole of the rectus muscle surrounding it and a portion of the peritoneum about the middle of the posterior surface of the tumour where it was adherent were removed. The abdomen was closed in four layers. The tumour on section was hard and firm like a fibroma. The pathologist's report was: "Dense fibroma containing spindle cells." December, 1908: Well; no recurrence. March, 1910: Well.

CASE 3.—A married woman, aged 28 years; had had two children, 4 and 2½ years. Admitted to hospital July 23rd, 1906. Patient was well up to four years ago, when she noticed that something was wrong with her left side. She made this observation shortly after her confinement. Six months later she noticed a definite lump in the same situation which had gradually got larger and was now of about the size of a hen's egg. Examination showed a hard nodular tumour in the abdominal wall above Poupart's ligament and above the left pubic spine. As her abdomen was a lax one the tumour could be lifted up between a finger and thumb. Operation on July 24th. Oblique incision over the tumour 4 inches in length. The tumour was in the rectus muscle. It was removed with the adjoining and surrounding muscle and the abdominal wall was closed in layers. Examination of the tumour showed all the characters of a fibroma. It sprang from the sheath of the rectus muscle. Pathologist's report: "Fibrifying spindle-celled sarcoma." This patient cannot be found, having left the district.

CASE 4.—A married woman, aged 35 years. The patient had three children, the last born two years ago, when she had twins. Five weeks ago she noticed a tumour 1 inch below the ribs and towards the right side; quite painless. On examination there was a small hard rounded tumour in the right rectus muscle just below the umbilicus. The tumour could still be felt when the abdominal muscles were made tense. A longitudinal incision was made over the swelling and a portion of the rectus muscle and its sheath, including the growth, was removed along with the peritoneum, which was adherent behind. The muscles were drawn together by a series of strong catgut sutures. On section the growth cut and looked like a fibroma invading the rectus muscle and its sheath. The pathological report was "Fibrifying spindle-celled sarcoma invading voluntary muscle."

CASE 5.—A man, aged 33 years, was admitted to hospital on Feb. 6th, 1907. He looked ill and had lost weight. He complained of loss of appetite and night pain in the right side of the abdomen, which had a swelling in it. On examination, there was a hard, cake-like mass in the right iliac fossa, which at one point showed an area of softening. On the 9th an oblique incision was made over the tumour and the muscles divided. They were infiltrated with a fibrous deposit, and in parts showed soft débris-like growth. The peritoneal cavity was not opened. The microscopical report was that the "structure is that of myxomatous degeneration, probably sarcomatous." Patient developed a fæcal fistula on March 9th, and left hospital a few days afterwards in very poor general condition. Several months later he was traced to the Western Infirmary, Glasgow, where he died.

CASE 6.—A married woman, aged 25 years, was admitted to hospital on March 9th, 1908, complaining of a lump in the right side of five months' duration. She had had two children; the first was a year old and the second eight weeks. The tumour was painless and had not increased in size. On examination, patient was a small, thin woman and had a hard tumour of the size of a hen's egg in the upper part of the right rectus muscle. It had a sharply defined inner and outer edge, but above and below ended indefinitely in the muscle. It had all the characters of a tumour in the abdominal wall. On March 10th the abdomen was opened in the middle line parallel to the tumour, and a transverse incision was made above and below the growth. All the structures of the abdominal wall around the tumour were removed down to the peritoneum which was left intact. The divided edges of the internal oblique and transversalis muscles were drawn over to and stitched to the linea alba, and the tendon of the external oblique was sutured over them. The tumour, which measured 4 inches by 3 inches and was 1 inch thick and invading the rectus muscle, was closely incorporated with its anterior sheath. On section the tumour looked like a fibroid of the uterus and showed definite whorls of fibrous tissue, with small mucoid cysts in its interior. Patient left the hospital well. On Oct. 17th of the same year she returned with a recurrence, stating that she had remained well for four months after the operation, when she again observed the tumour, which was quite painless as before. Her general condition was good. At the lower aspect of the incision in the rectus muscle there was a hard small mass of growth. On Oct. 20th, 1908, by a U-shaped flap the abdomen was opened and the whole of the portion of the rectus muscle containing the growth was widely removed. The omentum was brought up to fill the gap in the peritoneum and the muscles were brought together as well as possible, being sutured with silk. She made an uninterrupted recovery and left hospital well and healed. On March 17th, 1910, she was seen again. She was in excellent health and there was no recurrence and no weakness in the scar, and she could do her housework well. On both occasions the pathologist's report was that the "tumour was a fibro-sarcoma."

CASE 7.—A female, aged 30 years. Had had two children, the youngest three years ago. About two years before admission she noticed a lump of the size of a walnut below and to the right of the umbilicus. Recently the swelling had increased in size rapidly. It had always been quite painless. It was first noticed 12 months after the last child was born. The tumour was hard and not tender, and was about 2½ inches long by 1½ inches across its middle. It followed the line of the rectus muscle and had all the characteristics of an abdominal wall tumour. On Oct. 31st, 1908, a V-shaped incision was made over the tumour. The lower part of the rectus muscle below the tumour was divided across, the deep epigastric artery being ligatured and divided. The peritoneal cavity was opened in the middle line, and the middle third of the rectus muscle, including the aponeurosis and peritoneum, were removed. The abdominal wall was repaired by suturing the peritoneum separately, and the linea alba was brought to the cut edges of the transversalis and oblique muscles. On section the tumour was lozenge-shaped, hard, and fibrous. The pathological report was: "Fibrifying spindle-celled sarcoma with myxomatous change."

NOTES OF SOME CASES TREATED BY VACCINES OF UNKNOWN ORGANISMS.

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NOT the least merit of the vaccine treatment of disease is the fact that it necessarily involves the determination of the actual cause of the ailment from which a given patient is suffering, and so differs essentially from those methods which depend upon the treatment not of diseases but of symptoms. This determination of the specific cause is at once the source of its strength and the index of its limitations.

Attempts are too often made, it is to be feared, to employ vaccines on the supposition that if they do no good they can, at any rate, do little or no harm. This is no doubt very largely true, especially since in some cases there is what may be called a symbiotic infection, in which more than one factor is concerned, as, for example, pustular acne, in which the staphylococcic infection is secondary to that of the bacillus which determines by its presence the formation of the comedones, and the pustules may be cured without relieving the acne itself in the least. Or it may happen, and often does, that the apparent cause is an organism which does not lend itself to classification, either because of its unusual form, or because the condition of the patient is such as not to allow time for the purpose. Of this class are three of the four following cases.

CASE 1.—*Pleurisy following measles.*—The patient was a boy, aged 12 years, the son of a medical man. He had had an attack of measles followed by whooping-cough, and upon this combination there had supervened a severe attack of broncho-pneumonia, in the course of which he had developed pleurisy over the surface of both lungs. There were loud friction-sounds to be heard at many points, but no fluid could at any time be detected anywhere. As the patient's condition was extremely grave, I was asked to do my best to prepare a vaccine for him. The only material available was the sputum, which was scanty and slightly rusty. The mouth was cleansed as far as possible, and a small quantity of sputum was secured. This was thoroughly washed in sterile salt solution, several times successively, and a small fragment from the last washing was rubbed thoroughly on blood serum. A very scanty growth was secured in one tube, and this sufficed to make two doses of vaccine, the organism being a coccus of irregular size, from a minute dot to a cell of about half the size of a torula. The first dose lowered the temperature within 24 hours nearly to normal—it had previously ranged from 101° to 103·5° F.—and the second dose, two days after the first, still further improved matters. The good effect, however, was only temporary, and it was necessary to repeat the process of preparation. This time five doses were obtained, and four of these were administered with continuous improvement, but the fifth was mislaid, and after five days the symptoms recrudesced. Fortunately the fifth dose was at last recovered and sufficed to bring the temperature to normal and keep it

there, and the boy made a good recovery. His younger brother, who was taken ill at the same time, succumbed to the initial disease before I was called in.

CASE 2. *Malignant endocarditis, with phlebitis.*—I was summoned to Wantage to see, in conjunction with Mr. W. M. Woodhouse, a lady who had been ill for some weeks with high temperature and signs of general blood infection, including phlebitis—in both legs if I remember rightly—and evidence of vegetations in the form of a pronounced mitral murmur. I made several cultures, mixing the patient's blood with ordinary nutrient agar and sloping the tubes, as well as taking smears. The blood used for the cultures was withdrawn from the median basilic vein, under strict antiseptic precautions, and a scanty growth was obtained, though the whole of the tubes afforded sufficient for the provision of ten tubes of vaccine. The organism was apparently a simple staphylococcus, but would not grow on any other medium than blood-agar. When the vaccine reached Mr. Woodhouse the patient felt so much better that she refused to have it administered. About a month afterwards the symptoms reappeared, and the patient being in practically the same condition as before, I advised the use of the vaccine. The first dose reduced the temperature practically to normal, and only two more were administered, the patient's condition rapidly improving. After a few weeks many of the symptoms returned, but they were again removed by the use of the remainder of the vaccine, and I am informed by Mr. A. E. Cawston, into whose hands the case has passed, that all that is left is a small amount of blockage of the veins, which is also disappearing. No trace of the mitral murmur remains.

The next two cases are of pyrexia following delivery, but totally different in origin in the two cases.

CASE 3. *Puerperal toxæmia due to B. coli communis.*—The patient was an inmate of the British Lying-in Hospital, in whom severe pyrexia developed about the fifth day. She was a multipara. The material supplied to me consisted of a swab which had been charged in the uterine cavity. Having made the ordinary cultures, it occurred to me that the infection might be due to continuity of surface, and I washed the swab off in a tube of McConkey broth. There was a large and rapid growth of typical B. coli, and I prepared a vaccine of which three doses only were required to effect a cure, and the patient was discharged perfectly well about the fourteenth day.

CASE 4. *Puerperal toxæmia, due to an unidentified organism.*—I was asked by Dr. R. Thurston to see with him a woman who, after a normal confinement, had developed rigors, returning at intervals of from 12 to 16 hours, with concomitant high temperature, and followed by profuse sweating. I saw the patient about the eighth day and found the lochia somewhat purulent, but not particularly offensive, and the general condition fairly good. There was no sign of localised peritonitis nor any marked abdominal tenderness. By Dr. Thurston's wish I withdrew 10 c.c. of blood from the median basilic vein, but for my own satisfaction I had the vagina carefully cleansed and took a swab from the interior of the uterus. Cultures were made on the spot from both sources, but the blood coagulated so rapidly that there was much difficulty in utilising the whole amount taken. This may account for the fact that there was a growth of B. mesentericus in one tube, though all the others remained sterile. From the swab an abundant growth of a white staphylococcus was obtained, which grew freely on the ordinary media. From this a vaccine was prepared, but though the patient appeared to benefit at first, and the intervals between the rigors increased, this was only temporary. A second swab was taken and gave no better result. A third one, however, was taken coincidently with what Dr. Thurston described as a slight rush of pus. This gave on culture the same staphylococcus as before, but in many times smaller numbers, and also a diphtheroid bacillus, familiar to me in troubles of long standing within the genito-urinary passages, to which, from the difficulty of subculturing it, I have given the name of B. fugax. A couple of doses of this were made, and the first one increased the interval to 48 hours, whilst the second put an end to the rigors altogether, and the patient improved steadily and satisfactorily, so that there was no need to use the other ten doses which were sent as soon as ready. I advised that one more should be administered, however, to make assurance doubly sure.

The case which follows is rather an example of scientific guessing than of diagnosis, but the gravity of the condition and the age of the patient lend it considerable interest.

CASE 5. *Cholecystitis in a gall-bladder full of gall-stones.*—I was summoned to Nottingham by Dr. W. T. Rowe to see a lady of 83 who had suddenly, after over-exertion, developed acute cholecystitis, and in whom Dr. Rowe had satisfied himself that the gall-bladder was full of calculi. In view of the age of the patient, and the great risk of an operation, I was led to consider the possible agent of infection, and as it seemed probable that B. coli was the organism concerned I took down with me a dose of 100 millions just prepared for another patient. After consultation this was administered, and marked improvement followed. Before my next visit I had prepared a "coli" vaccine from the patient's own fæces, and except for one day, when the symptoms seemed to return with full force for 24 hours, the improvement in the patient's condition was continuous, and she is now, having received five injections, after six weeks as well as ever, though, so far as can be judged, the calculi are still *in situ*. As the patient in this case happened to be my own mother it will be understood that the issue gave me special satisfaction.

In view of the favourable character of the results in the foregoing cases it seems desirable to draw attention to the fact that they were obtained under the best possible conditions—namely, in all cases, either by myself making the cultures directly at the bedside, or by the careful exclusion of possible contamination.

Medical men frequently ask how much blood is needed for the preparation of a vaccine. It cannot be too insistently stated that, for blood cultures at any rate, the latter must be made at the bedside, and incubated at the earliest possible moment. Drops of blood from fingers or ears are absolutely worthless either for examination for bacteria—except in anthrax—or for the preparation of vaccines, and most of all does this apply to blood sent in capillary or other tubes, in which the whole of the particulate matter is entangled in the clot, even if one could have the least confidence that any growth obtained or organism seen was actually present in the blood, and was not the result of accidental contamination. It is hardly too much to say that the presence of the "opsonist" is almost as necessary for the success of a blood-culture as that of the surgeon for the performance of an operation.

De Crespigny-park, Denmark Hill, S.E.

PRIMARY ACIDOSIS; RECOVERY.

BY SIDNEY BONTOR, M.D., M.S. DURH.,
SURGEON TO THE WEST HERTS HOSPITAL.

MUCH attention has been given lately to the production of "acidosis" by anæsthetics and as the terminal condition of such complaints as diabetes. The following case, which is probably the first recorded instance of recovery after a severe primary acid-intoxication in an adult, will therefore, I think, be of interest.

The patient, a widow, aged 68 years, has always enjoyed good health, although rather pale and not very robust. Except for an attack of acute nephritis in 1887 she has had no illness. She took an ordinary mixed diet, but has always been a small eater; she takes an occasional glass of wine, but has been practically an abstainer from alcoholic beverages for the last 20 years. She drinks an average of 2½ pints of fluid daily, and she leads a regular, healthy life. On Nov. 9th last year, until when she had been in her usual health, she remained some time in her garden and became exceedingly cold, so cold that in spite of her wrapping up with hot bottles in a warm room she was a very long time getting warm again. Headache came on during the evening and prevented her from sleeping during the night. On the next day the headache was worse and she felt sick but did not vomit; the bowels acted as usual. She got up at midday, but movement aggravated the feeling of sickness and the headache so that she was unable to do anything. This condition continued for the next three days, the headache quite incapacitating her. Her diet was very small in amount and consisted of fish and milk puddings with plenty of drinks.

On Nov. 13th I saw the patient for the first time. She was then feeling better, but still had headache rather severely. She appeared to be recovering from an intestinal toxæmia; the feeling of sickness had passed off, her temperature was 98° F., her bowels had acted each day after a small dose of saline in the morning, and her

urine was normal. (The urine had been examined on several occasions since her attack of nephritis 20 years ago and had always been normal.) During that day she had the same diet and felt better, sleeping pretty well. On the next day she felt still better in the morning and had some bacon for breakfast and some chicken at her midday meal. During the afternoon, however, the headache returned and gradually increased in severity, and she became drowsy but did not have continuous sleep. On the 15th the headache was "crushing" and she was quite drowsy and apathetic. On the 16th and 17th she was constantly sick and the bowels did not act; she could only take fluids. On the 18th she became slightly delirious, and was wandering all night. Her bowels acted well after a small dose of calomel; the urine was still normal. On the 20th she was practically unconscious, but could be roused occasionally; Dr. R. Hutchison kindly saw her with me, and he gave a very bad prognosis, expecting she would not survive many days. From then until Dec. 11th she never recovered consciousness, on some days being so deeply comatose that she would not respond to any stimulus, food placed in her mouth remaining unswallowed. For three days (Dec. 2nd to 5th) there was well-marked Cheyne-Stokes respiration. On those days she vomited several times, the vomit being very acid; she was not quite so deeply unconscious afterwards, and with much care about three pints of nourishment were able to be administered daily. On Dec. 10th she began to be less deeply unconscious, gradually improved, and made an uninterrupted recovery, being able to sit out of bed by the 20th and to go downstairs on Christmas Day, and now, a year afterwards, she feels as well as ever she did, except perhaps a little less vigorous.

The diagnosis of this case was difficult. It was evidently a toxæmia and appeared to rest between uræmia, an intestinal infection, and acidosis, but at first there was nothing to enable a differential diagnosis to be made. The urine, which was examined nearly every day, gave no definite reaction until Nov. 22nd—13 days from the onset of the condition. Then diacetic acid was found to be present and the condition was shown to be one of acid intoxication, and a line of treatment was framed to meet the condition. In order to keep up the store of glycogen the diet was entirely limited to carbohydrates, and with a view of neutralising as far as possible the acid condition bicarbonate of soda was introduced into the system as freely as possible. It was given in every feed and by slow introduction into the rectum, according to Murphy's plan, of continuous rectal infusion as long as the bowel would tolerate it, and afterwards by occasional enemata.

Bearing in mind the striking results obtained by Young and Williams, which have proved that acetonæmia varies with the amount of oxygen intake during anæsthetisation, oxygen was administered freely day and night, and one of the first recollections of the patient is the extremely refreshing sensation produced by its inhalation. Strychnine was commenced when the heart began to fail, and was kept up until recovery was assured; 1/60th grain was given every four hours at first, and subsequently twice a day. The administration of food was extremely difficult, and the patient's recovery must be largely attributed to the great care and patience exercised by her daughter and the nurse, 20 minutes frequently being required to adminster a few ounces of food.

The consideration of the etiology of this case is interesting. The exciting cause appears to have been the extreme cold experienced on Nov. 9th. This probably so interfered with the digestive processes that an intestinal toxæmia was induced; and subsequently, by their work in dealing with the resulting toxins, the liver cells were so damaged that they were incapable of performing their normal function of transforming the carbohydrates into glycogen. Moreover, as this particular patient has always been a very small eater, and is always pale and has a very small amount of adipose tissue, it is possible that her store of glycogen is always very small; and as extreme cold is one of the causes which produce loss of glycogen, it is probable that this store of glycogen became exhausted during the first few days of her illness. This view is supported by the fact that, after a temporary recovery, she became rapidly worse when acid-producing foods were introduced on Nov. 14th. The original toxæmia appeared to be passing off, but in consequence of the impaired action of the liver cells and the exhaustion of her store of glycogen, the fatty acids were not fully oxidised, and the organic acids, combining with the alkaline bases of the blood, reduced its alkalinity until the "acidosis" was produced.

The diacetic reaction disappeared from the urine on Dec. 9th and the urine has remained normal ever since. She is now taking her ordinary diet and leading her usual life.

Great Berkhamsted.

THE USE OF THE FARADIC CURRENT IN THE TREATMENT OF PERSISTENT APHONIA FOLLOWING LARYNGITIS; TWO CASES.

BY FRANCIS HERNAMAN-JOHNSON, M.D.,
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IN setting forth the following cases, together with such brief comments as seem to me desirable, I have no wish to pose as a laryngologist. It is rather as one interested in the application of electricity in its simpler forms to the exigencies of everyday practice that I venture to hope what I have to say may prove of some value.

CASE 1. *Aphonia of 12 years' duration.*—The patient, a clerk, aged 38 years, in his early manhood had been what is popularly known as a "local preacher," and for years indulged in pulpit oratory of a vehement nature. On two or three occasions during this period he lost his voice for a few days, but it always returned with rest. At length, however, being upon one occasion, in the depths of winter, called to preach at a remote country chapel, he caught a severe cold and was confined to bed for a fortnight. Meanwhile his voice left him entirely, and to his alarm did not return with the subsidence of the bronchial symptoms. During the ensuing decade the patient submitted to a variety of treatments at the hands of various medical men—sprays, gargles, lozenges, internal paintings, external blisterings—in fact, ran the whole gamut of orthodox remedies many times over. All this was of no avail. Finally, at unqualified hands he underwent a four months' course of what, so far as I could gather from his description, must have been the galvanic or continuous current. The result was likewise *nil*. A laryngoscopic examination showed the vocal cords to be slightly thickened and pinkish in colour. On attempting phonation they failed to approximate fully, remaining separated by an elliptical opening—a state of affairs due to paresis of the internal tensor muscles. Judged by the long history, the case did not look very promising from the point of view of treatment. All I could tell the patient was that a course of electricity might be of benefit. He, however, demurred, saying that he had already undergone (and paid for) such a course. It was not until I convinced him by personal application that the form of current I purposed using differed from the one previously experienced that he consented to a fortnight's trial. Two weeks' mild external faradisation produced the following result. Aphonia was no longer absolute; true voice sounds could be produced at times, especially in the morning when the patient was fresh. With the laryngoscope an attempt to phonate was seen at first to be successful, the cords approximating fairly well; but the adductor muscles were not yet equal to sustained effort, and soon relaxed. A month's further treatment on these lines was carried out, with the addition of piano-aided exercises in producing and sustaining low notes. By the end of this time speech had become entirely vocal, except at such times as the patient was very fatigued, when a relapse occurred to the old whispered speech. It would be idle to say that his voice was perfect, or even pleasing, but at least he was now able to make himself heard across an ordinary room—a feat of which he had been incapable for nearly 12 years. Whether or not anything more could have been accomplished I am unable to say, as the patient's firm chose this particular time to remove him to another town. He called on me six months later, and his voice was then practically the same as when I last heard him.

CASE 2.—The patient, a school teacher, aged 22 years, a cousin of the man referred to above, came to me complaining of similar throat trouble; the aphonia, however, was not

absolute, speech in a hoarse, croaking voice being occasionally possible. There was no history of excessive strain, but one of repeated neglected "colds," with accompanying laryngitis. A gradual deterioration of the voice resulted from this neglect, and it finally became so bad that the girl was obliged to resign her position as a teacher. This occurred two years before I first saw her. A view of the larynx showed the vocal cords somewhat swollen and congested. Efforts to speak resulted in a fair degree of approximation, except that a small triangular space remained at the back of the glottis. The aphonia was therefore apparently as much due to catarrhal changes in the tension and vibration of the cords as to neuro-muscular defect. In addition to the laryngeal inflammation, there existed permanently swollen tonsils, congestion of the pharynx, and adenoids. The patient was quite unable to breathe through the nose. The question of treatment presented difficulties. The girl expected to be cured, as her relative had been, by the simple application of electricity. A consideration of the facts of the case made me not very hopeful as to the benefits to be derived from faradisation alone. I recommended preliminary removal of the tonsils, &c., but finally yielded to her importunities, and consented to try the effect of a fortnight's treatment. Some improvement certainly resulted, but it was not very striking. At the end of the agreed period I again urged surgical interference. This time the patient consented; a very thorough operation was performed, and, perhaps for the first time in her life, she was able to breathe fully through her nose. After about a week's time—that is to say, as soon as the irritation due to the surgical trauma had subsided—the voice began to improve, and continued to do so for some weeks. Two months after the operation the patient could speak vocally, but in rough, unpleasant tones. Tested by the piano for musical notes, she was unable to produce anything higher than an indifferent "middle C." I waited another six weeks, to see if any further spontaneous improvement would occur. As it did not, I decided to recommence faradic stimulation, with a view to improving the pitch and timbre of the voice. The results were most gratifying. In a short time the patient was able to manage "F," and later "A," but beyond this point no progress seemed possible. The patient's speaking voice is now of good volume and no more than slightly rasping. She has been able to obtain another post as teacher.

Remarks.—A study of the above cases, and of others of a similar nature which have come under my notice, has led me to form certain conclusions regarding the pathology and treatment of persistent post-catarrhal aphonia. Text-book accounts of chronic laryngitis and its accompanying disturbances of voice appear to me to err in regarding the disease as if it were on all fours with, say, a tracheitis. In other words, attention is concentrated on the mucous membrane to the neglect of other equally important structures. The larynx is primarily a mechanical device for the production of vocal sounds, and depends for its proper functioning even more upon the integrity of its muscles and nerves than upon the healthiness of their covering. In chronic catarrh of this organ the muscles become secondarily affected, and the delicate terminals of the motor nerves in all probability undergo an inflammatory degeneration. An acutely inflamed mucosa doubtless demands local sedative applications; and even when the trouble has become chronic, astringent sprays, paintings, &c., can often play an important part. But the tendency in many chronic cases is for the mucous engorgement to disappear to a great extent, whereas the damage to the neuro-muscular apparatus remains. Under such circumstances it is unreasonable to expect a cure by the ordinary means. On the other hand, improvement may be looked for from such measures of "natural therapy" as produce benefit in similar pathological conditions elsewhere—e.g., in that form of facial palsy which is the result of exposure to cold.

In treating paresis of laryngeal muscles by faradisation we are at a disadvantage as compared with the same conditions occurring in an arm or leg. We cannot single out the affected muscle or muscles for individual stimulation. This difficulty is not, however, insurmountable. The secret of success lies in the regular and persistent use of *mild currents*, which are not calculated to produce violent contractions of opposing healthy muscles. If carefully applied for a prolonged period this form of electricity exercises a selective action on the affected structures and eventually restores their tone.

Remarkable as are the results of faradism in suitable cases, we must not fall into the error of regarding it as a panacea for each and every form of catarrhal aphonia. Where the laryngoscope shows marked swelling and congestion of the cords the mucous membrane must be attacked vigorously on orthodox lines, and here again we are likely to meet with little success if the naso-pharynx is in an unhealthy condition. Nevertheless, even where the mucosa is the part most at fault, the judicious use of the interrupted current forms a valuable adjunct to routine treatment.

In conclusion, it is perhaps desirable to urge the necessity, in any given case, of making sure that the aphonia has really resulted from such simple causes as catarrh, overstrain, or a combination of both. Thoracic aneurysm, lesions of the central nervous system, malignant growths, the ulceration of syphilis or of tubercle—these must always be borne in mind as sinister possibilities, and to waste time in faradising a patient who subsequently dies from cancer or is cured by iodide of potassium is to run the risk of being dubbed—not undeservedly—a quack.

Bishop Auckland, Durham.

NOTES ON A CASE OF PHLEGMASIA ALBA DOLENS, FOLLOWED BY PULMONARY EMBOLISM AND INFARCTION OF THE LUNG; RECOVERY.

BY J. C. CURTIS, L.R.C.P. & S. EDIN.

THE patient, a married woman aged 28 years, a primipara, gave birth to an eight months' female child on May 16th. She resided in the country and was attended by a village nurse. She went on satisfactorily until May 21st when she developed phlegmasia alba dolens in the left leg. The whole limb was considerably swollen, the swelling extending as high as Poupart's ligament. No thrombosed vein could be detected in the thigh or leg. It was therefore apparent that the circulatory block was in the pelvis. The swollen limb measured 1 inch more than the sound one, and was accompanied by the usual pain. The temperature was 101° F., pulse 90, and respirations 30. The limb was treated by lightly applying cotton-wool, and the foot of the bed was slightly elevated on wooden blocks. The lochia were somewhat offensive, and so hot permanganate douches were given night and morning. The bowels were regulated by enemata. The patient progressed favourably. On the 26th the leg was much less painful and her temperature normal, but there was no appreciable diminution in the swelling. On the night of the 28th she was seized with violent pains in the left chest and shortness of breath. As her husband expressed it, "she had awful pains in her chest, and I expected her to die every minute."

When seen on the morning of the 29th the patient was in a very distressed condition. The respirations were 72; pulse 108, regular, but very feeble; and temperature 100°. The extremities were cold. She complained of intense pain over the epigastrium, precordia, and lower axilla. She was too ill for any detailed examination, but an impaired note was found over the lower part of the axilla, and the breath sounds over this area were badly transmitted; no friction sound was heard. A soft systolic murmur could be heard over the pulmonary area and the second sound was accentuated. She suffered from retching and some vomiting, and the giving of the smallest amounts of liquid nourishment caused great pain over the precordia and lower axilla. As her stomach was dilated this was attributed to pressure on the diaphragm interfering with cardiac and respiratory movements. Hot water bottles were applied to the feet and hot applications to the chest. She was given iced milk and soda-water with brandy in small quantities at frequent intervals. She was also given the following mixture every four hours: bismuth carbonate, 10 grains; aromatic spirit of ammonia, 15 minims; compound tincture of cardamoms, 10 minims; mucilage, q.s., and water to 1 ounce. On the following day (30th) the vomiting had ceased. The respirations were 66, pulse 102, and temperature 101°. She still had considerable pain over the lower axilla, and a marked friction sound could be heard over this area, and it

was noticed that the swelling in the left leg had considerably diminished; it was much softer and free from pain. The pulmonary systolic murmur could still be heard, although not so marked.

On June 3rd there was a considerably impaired note over the lower half of the upper lobe, and the whole of the lower lobe and axilla, with marked tubular breathing, bronchophony, and pectoriloquy. The pleuritic rub was still very much in evidence. The temperature was 99°, respiratory rate 60, and pulse 96, regular, and of medium tension. The pulmonary sounds were now clear. The patient was very cheerful. She had a slight dry cough, but no sanguineous expectoration. She complained of a slight pain in the axilla when she took a deep breath. She was taking an abudance of fluid nourishment. On the 9th the respiratory rate had dropped to 30. There was good air entry at the base, but dulness persisted over the axilla, the lower half of the upper lobe, and the upper half of the lower lobe; and over these areas there were still tubular breathing, bronchophony, and pectoriloquy. There was still an occasional dry cough but no expectoration. The temperature was normal. The left leg had resumed its normal size. The lung symptoms gradually cleared up, and on the 18th the pulse was 72, regular, and strong. The respiratory rate was 24, and there was good air entry over the whole lung. She still had a little pain over the lower axilla when taking a deep breath. She was up and about on the 19th, and on August 5th was quite well.

The chief points in the case were: (1) the large area of lung involved; (2) the almost simultaneous disappearance of the œdema in the leg, coincident with the lung lesion; (3) the small amount of pyrexia, pointing to an aseptic condition of the lung lesion; (4) the high respiratory rate, due to the large amount of lung tissue thrown out of action; and (5) total absence of any sanguineous expectoration, and practically no cough. I should add that the urine was examined and nothing abnormal was found. The case occurred in the practice of Dr. W. W. Anderson of Tring, and I am indebted to him for permission to publish it.

Mumbles, near Swansea.

THE INFLUENCE OF QUININE AND MORPHIA UPON PHAGOCYTOSIS.

BY H. LYON SMITH, M.D. DURH.,
FORMERLY REID SCHOLAR AND FOULIS RESEARCH SCHOLAR.

IT may be accepted that experiments *in vitro* fail to reproduce the complicated processes which occur in the living subject, and that deductions drawn from them are unsound unless other evidence can be adduced in support. In spite of this discouraging premise, I have ventured to make a series of researches to ascertain, if possible, the truth of the oft-repeated statement that quinine, like alcohol in excess, inhibits phagocytosis, and is therefore contra-indicated in all septic conditions.

The opsonic index was taken as a basis for the work, with the additional factor of a solution of quinine and morphia. By way of control, to avoid the possibility of error in the index being affected by chemotaxis, in each group one index was taken with a volume of salt solution in place of the quinine and morphia, but it did not appear that the mere mechanical effect of diluting the ordinary constituents of an opsonic content influenced the result of the count. The very soluble acid hydrochloride of quinine was selected because it is much less irritating than the sulphate and contains 8 per cent. more quinine. Morphia hydrochloride, 1/8 grain, was added to each 10 grains of the quinine salt, because in practice I have found the combination more efficacious than either alkaloid used alone.

It was roughly calculated that a 10-grain dose given to a 10-stone person, if entirely absorbed, would represent in the blood a proportion of 1 in 7500, on Waller's estimate that the ratio between the weight of the blood and the weight of an individual is about 1 to 15. The influence of this solution (1/7500, equivalent to a 10 grain dose) upon the phagocytosis of different kinds of pathogenic organisms (e.g., streptococci, staphylococci, pneumococci, B. coli, B. influenzæ, B. pseudodiphtheriæ, and B. tuberculosis) was contrasted with stronger and weaker solutions to ascertain the effect of varying doses.

The details of a typical experiment were as follows:—

A. One volume each of (1) washed human blood corpuscles; (2) human serum; (3) fresh emulsion of living B. coli; and (4) 1/7500 solution of quinine and morphia. These were thoroughly mixed in a Wright's pipette, sealed, and incubated in an opsoniser at 37° C. for 15 minutes. Films were then made, stained, and counted.

In B of the same group No. 4 contained 1/30,000 solution of quinine and morphia, equivalent to a 2½-grain dose.

In C No. 4 was replaced by a volume of sodium chloride solution, 0·85 per cent.

In D No. 4 was omitted, as in an ordinary test for an opsonic index.

To avoid the risk of bias, or as Sir Almroth Wright put it, "to be careful lest one should find what one wished to find," the different slides were "shuffled" by an independent person and thus counted without knowledge of which was which. Dr. W. E. de Korté was kind enough to help me in this matter and to corroborate the results in some cases by making independent counts.

In this B. coli experiment the phagocytic counts were A = 428, B = 321, C = 164, and D = 261, 100 polynuclear leucocytes being counted in each case. The addition of quinine and morphia had increased the phagocytosis in this case by 64 per cent. for the 10-grain dose and 23 per cent. for the 2½-grain dose.

I was only able to complete 11 sets of experiments, and in the majority of them there was an increased phagocytosis, always most marked with the 10-grain dose solution.

Summary of Results showing Increase of Phagocytosis.

	Per cent.		Per cent.
1. Streptococci	30	8. A pseudo-diphtheria bacillus	20
2. B. coli	64	9. B. coli (a second strain)	30
4. Pneumococci...	80	10. Pneumococci (a second strain)	30
6. Streptococci (another strain)...	90	11. B. coli (a third strain)...	250
7. B. influenzæ	20		

It appears that, instead of inhibiting phagocytosis with the above micro-organisms, the addition of quinine and morphia, in what may be considered the "ideal" dose, greatly increased it. Smaller doses in all the groups were less effective, and one important fact was clearly demonstrated—namely, that very large doses, 30 and 40 grains, instead of increasing, actually diminished phagocytosis, sometimes to the extent of over 50 per cent. This latter observation makes me think that the statement that quinine is contra-indicated in bacterial invasions is based upon experiments in which too strong solutions have been used, doses which would undoubtedly have a most depressing or even poisonous effect upon patients.

It will be noted that groups Nos. 3 and 5 have been left out of the list of experiments which showed increases. In No. 3 tubercle bacilli were used and the result was a diminished phagocytosis. In No. 5 staphylococci formed the bacterial emulsion and a 10-grain dose solution diminished the count by 50 per cent., whereas a one-grain dose solution gave a very slight increase. It takes a quinine solution of 1/400 to inhibit the growth of certain bacteria (staphylococci), and we may safely assume that any bactericidal effect is quite out of court in the therapeutical doses.

I would submit that the stimulus to phagocytosis in the foregoing test-tube cases was due to the quinine and morphia acting as an opsonin to certain microbes. If the result had been simply due to stimulation of the leucocytes, groups Nos. 3 and 5 would not have differed in such marked fashion from the others.

In the initial stages of a bacterial invasion, and particularly in cases of appendicitis, acute colitis, puerperal septicæmia, cellulitis, erysipelas, and influenza, the prompt administration of quinine in the ideal dose (which seems to be about 1 grain to each stone of the patient's weight) appears likely to strengthen the natural first line of defence. It is at this period, when the invaders are comparatively few in numbers, that a remedy which will quickly increase phagocytic power is of the greatest service and may possibly abort the attack. Even if it fails to achieve complete success it postpones the immediate danger and affords time to bring into play more exact methods of serum or vaccine treatment.

Mansfield-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTES ON A CASE OF OPTIC ATROPHY FOLLOWING SUPRAORBITAL INJURY.

BY A. GASCOIGNE WILDEY, M.R.C.S. ENG.,
FLEET SURGEON, ROYAL NAVY.

AN A.B., aged 26 years, while cycling on August 1st, 1909, was thrown by the skidding of his machine and fell upon his head. He was slightly concussed, and received a small contused wound over the right orbit. Upon recovering consciousness he complained of headache and of complete loss of vision of the right eye. The accident occurred at 4 P.M. He was seen by a medical officer of the Royal Naval Barracks, Devonport, at 10 P.M. The wound was found to be superficial. There was some slight œdema of the upper lid. No injury to the eye could be detected. There were no obvious signs of fracture of the skull. Amaurosis of the right eye was complete, perception of light being absent. Both pupils reacted to light. There was no proptosis nor increased tension of the globe. On the following morning an examination by ophthalmoscope was made, but nothing abnormal found. The right pupil did not react in attempts to accommodate. Examination of the area of distribution of the supraorbital nerve showed no loss of sensation. On August 9th there was some return of perception of light, and on the 12th the patient stated that he could distinguish the outline of a person in a good light at about 15 feet. He could dimly make out the largest letters of Snellen's types at 1 metre.

Atrophic changes in the right disc were observed on August 14th, the temporal side of the disc being distinctly pale. Perception of light was absent on the nasal side of the fundus. A perimeter chart made on the 20th showed that such vision as existed was limited to a very small central area confined to the nasal side in the 40° circle. Within this area there was a central scotoma. Colour vision was limited to an exceedingly small central spot on the nasal side within the 20° circle. Subsequent examinations proved that a rapid increase of atrophic changes was taking place. The right disc was generally paler and distinctly white on the temporal side. On Sept. 17th the area of perception of light was limited to a small irregular patch in the lower and nasal portion of the 20° circle.

In this case it is probable there was a fracture of the sphenoid through the optic foramen with lesion of the optic nerve. Here, somewhat fortunately, loss of vision was noticed immediately the patient recovered consciousness; it might easily have passed unnoticed for a considerable time, since the dressings of the supraorbital wound covered the eye, and there was some œdema of the lid. Hence these cases, formerly called "supraorbital" amauroses in the belief that the loss of vision was in sympathy with a lesion of the supraorbital nerve, are of considerable interest medico-legally, and the possibility of a fracture through the optic foramen with subsequent atrophic changes in the optic nerve should be considered in all cases of supraorbital injury.

A PRACTICAL APPLICATION OF THE SYMPTOM-COMPLEX IN RUPTURED ABDOMINAL HYDATID CYST.

BY A. H. TEBBUTT, M.B. SYDNEY,
AND
D. A. WELSH, M.A., M.D. EDIN.

A SYMPTOM-COMPLEX in ruptured abdominal hydatid cyst was recently described by Barling and Welsh[1] as consisting of eosinophil leucocytosis, peritonitis with effusion, and urticaria, the last, however, not always being observed. This association of phenomena had an interesting application in the diagnosis of a recent case.

A woman, 42 years old, had suffered since girlhood from recurring "bilious attacks." Two weeks before admission she had one of these attacks, and after vomiting noticed that her abdomen was swollen. The swelling had persisted ever since its somewhat sudden onset. No itching or rash was noticed by the patient.

On admission on August 3rd, 1910, she was wasted, sick, and listless, with slight intermittent pyrexia, and a rapid, soft pulse. The abdomen was greatly distended with fluid and the superficial veins were dilated. Fluid was withdrawn from the abdomen on August 6th for diagnostic purposes. It appeared straw-coloured and deposited a brownish granular sediment after some hours. In the sediment the endothelial cells were scanty. A few cells of doubtful identity were found, but no hooklets nor scolices. The great majority of the cells were leucocytes, and there was a remarkable accumulation of eosinophil forms. The differential count (240 counted) showed: eosinophils, 81·6 per cent.; lymphocytes, 13·0 per cent.; neutrophils, 5·0 per cent.; and basophils, 0·4 per cent. A blood examination on the 8th revealed a high degree of eosinophilia. The leucocytes altogether numbered 25,000 per c.mm., and on counting 300 cells the leucocytes were found to be made up as follows: eosinophils, 29·0 per cent.; neutrophils, 54·0 per cent.; lymphocytes, &c., 16·6 per cent.; and basophils, 0·4 per cent. There was, therefore, a well-marked eosinophil leucocytosis, together with a slight neutrophil leucocytosis. The precipitin test was negative, but the hydatid fluid employed had never given a satisfactory reaction, and in these circumstances the absence of the reaction could not be regarded as significant.

Operation showed abundance of free fluid and lymph, together with several daughter-cysts, in the peritoneal sac. On the under surface of the liver there was found a large hydatid cyst which had ruptured far back, and enormous numbers of daughter-cysts and fluid were contained within it.

The interest of the case lies in the association of a ruptured hydatid cyst of the liver with the appearance of free fluid in the peritoneal sac and with a high proportion of eosinophil cells in the blood and in the peritoneal fluid. Though no urticarial eruption was noticed by the patient these phenomena otherwise correspond with the symptom-complex, and illustrate the diagnostic importance of this association, as the symptoms otherwise pointed to malignant disease.

We are indebted to Dr. Mills and Dr. Abbott for their kind permission to make use of the clinical notes of the case.
Sydney.

[1] Australasian Medical Gazette, July 20th, 1910, p. 349; and THE LANCET, Oct. 1st, 1910, p. 1001.

NOTES ON TWO CASES OF ECZEMA EXUDANS TREATED SUCCESSFULLY WITH HIGH-FREQUENCY CURRENTS AND KEROL.

BY G. M. LOWE, M.D. EDIN., F.R.C.P. EDIN.

IN common with many others I have found mild currents (70 milliampères) of great service in the treatment of chronic diseases of the skin, especially those where the constitutional condition of the patient indicates an irritable state of the trophic nerves, a condition so frequently met with in middle-aged women.

In the following cases, although great benefit followed the above application, their cure was not complete until I used a preparation sold under the name of lana kerol, which is described by the makers (Quibell Bros., Limited) as an oxidised di-phenyl compound, which is comparatively insoluble, and for this reason very much less toxic than phenol; the active di-phenyl compound is made miscible with water by means of a special soap, and this causes it to form a perfect emulsion with water. Its bactericidal qualities are highly vouched for by such observers as Dr. D. Sommerville and Mr. W. C. C. Pakes, and Professor R. T. Hewlett.

CASE 1.—The patient was a lady, aged 50 years, who had been suffering from eczema exudans for 20 years; the disease came on soon after the birth of her only son. She is a tall, spare, active woman, worn down with the constant irritation of the eruption which covered the face and almost every part of the body. She had, of course, used every remedy that had been suggested to her, and was unwilling to try anything further. I found high-frequency currents and the effleuve very efficacious in relieving the irritation of the skin and in improving the general health. She was very careful to follow out the prescribed diet, and for a time a cure seemed

probable; but as from time to time there was a return of the eruption in the axillæ and groin, I prescribed lana kerol 1 in 300 parts as a lotion, the diseased skin to be thoroughly washed with it every night and morning, the flexures to be dressed with unguentum rusci co., and the erythematous surfaces to be dusted with boric acid powder. The result was a complete cure, and there has been no return in 12 months.

CASE 2.—The patient was a lady, aged 60 years, very thin, but strong and energetic, who had been subject to eczema for over ten years. The skin is thin, dry, and irritable; the eruption affects chiefly the neck and scalp, as well as the axillæ, back, and flexures of the thighs. Change of air, high-frequency currents, and calamine applications effected a temporary cure last year, but the complaint returned in March, 1910. Her home is in an exposed locality on a clay soil. As she could not come to me for treatment I sent a capable nurse with instructions to cleanse every part of the skin night and morning with the kerol solution (1 in 300) and then apply the unguentum rusci co. and boric acid powder as required. In three weeks my nurse returned reporting an absolute cure.

Ryde.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION.

Presidential Address.

THE first meeting of the session of this section was held on Oct. 18th, when the President, Professor A. R. CUSHNY, delivered his presidential address, entitled "A Plea for the Study of Therapeutics." He traced the changes of clinical sentiment, from the optimistic faith in the few available remedies current in the early nineteenth century, to the sceptical attitude towards drugs of the modern physician. In the mid-nineteenth century, when, under the influence of pathological anatomy, medicine had become pessimistic and treatment almost wholly expectant, the new school of pharmacology perforce abandoned the hospital wards for the laboratory. The time had come for applying to the practice of the wards the principles learned in the laboratory, and for insisting on accurate quantitative records, hitherto so conspicuously lacking in clinical literature. Professor R. Stockman's work on salicylates was a model of such accurate clinical investigation. Ergot might be cited as a drug for the clinical investigation of which laboratory work had now furnished the data. The President described, and illustrated by charts and records, his joint investigation, with Dr. James Mackenzie, of the action of drugs affecting the circulation, and chiefly of the cardiac tonics. The future course of this investigation was indicated and the increasing necessity for work of this type emphasised. The President outlined the changes in organisation necessary to bring into their proper relation research and instruction in pharmacology and in therapeutics. The hour being late the meeting adjourned without discussion of the address.

MEDICAL SECTION.

Multiple Cartilaginous Exostoses.

A MEETING of this section was held on Oct. 25th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Dr. A. M. GOSSAGE and Mr. E. ROCK CARLING communicated a paper on Multiple Cartilaginous Exostoses. According to the authors the occurrence of this condition was rare, but was probably more frequent than was usually supposed, since the condition often gave rise to no discomfort. The tumours arose from the intermediate cartilage and were generally first noticed during the first two years of life, but might be present at birth. They were very variable in size and number and usually required no treatment, but might cause discomfort by pressure on adjacent structures, when they should be removed. They had been supposed to be a consequence of rheumatism, syphilis, or rickets, but there was no real evidence in favour of any of those views. There was evidently some inherent abnormality of the intermediate cartilage which caused it to develop in an unusual manner, and that abnormality was very frequently hereditary. Evidence was adduced to show that the abnormality of the intermediate cartilage resulted not only in the production of bony tumours but also in alterations in the size and length of the bones. The inheritance seemed to obey Mendel's law, an affected person transmitting the abnormality to about half his children by a normal mate, there being no evidence of increased or diminished intensity during successive generations. Males were, however, affected about twice as often as females, but normal women in affected families not infrequently transmitted the abnormality to some of their children, while it was probable that normal males never did so. There were a considerable number of sporadic cases in which no history of any similar complaint amongst the relatives could be obtained, but it was possible that some of those did not arise *de novo* but were really hereditary, the transmission having taken place through one or more normal females. The records of 51 families were dealt with, of which 30 were reported fairly fully. In those 30 families, taking only the later generations of the offspring of affected individuals, 121 were abnormal and 130 normal. Cases from two previously unrecorded families were included and described.

Professor BATESON (Cambridge) said that the cases approached the Mendelian characteristics, but he did not think in the strict sense of the term that they should be included under Mendel's law.

After Dr. S. R. WELLS had spoken, Mr. CARLING and Dr. GOSSAGE replied.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.

A MEETING of this section was held on Oct. 28th, Dr. E. CAUTLEY, the President, being in the chair.

Mr. W. HAMPSON exhibited (for Dr. ERIC PRITCHARD) a case of Achondroplasia in a girl aged 5 years. The skiagrams showed defective ossification of the epiphyses of the long bones with overgrowth of the cartilages. The patellæ were either absent or rudimentary.

Dr. T. R. WHIPHAM showed a Heart presenting atresia of the pulmonary artery, patent foramen ovale, and deficient interventricular septum. The right side was hypertrophied and the left carotid artery arose from the innominate artery. The patient, aged 1 year and 9 months, was shown on May 27th and presented marked cyanosis and clubbing of the digits. There was a polycythæmia of 12,740,000 red corpuscles per cubic millimetre and a hæmoglobin value of 200 per cent. The only murmur heard was a faint systolic bruit over the pulmonary area.

Dr. D. WOOD showed an infant, aged 5 weeks, with a Cleft in the Hard and Soft Palate, the cleft being occupied by new growths which were of an uncertain nature.

Dr. F. LANGMEAD showed a case of Scleroderma Neonatorum with Myositis Fibrosa in an infant aged 8 months. The face, trunk, and limbs were all affected, and the temperature showed a daily rise to from 99° to 100° F.

Mr. J. P. LOCKHART MUMMERY exhibited a girl, aged 5½ years, with a Tumour on the Posterior Aspect of the Left Rectus Abdominis Muscle, which had almost disappeared under iodide of potassium. There were no other signs or history of congenital syphilis.

Mr. DOUGLAS DREW showed a boy, aged 10 years, with Injury to the Right Brachial Plexus as the result of being crushed by a van-wheel. The arm presented a paralysis of the Duchenne-Erb type, with weakness of the extensors of the wrist and slight anæsthesia over the shoulder. The paralysed muscles showed reaction of degeneration and had not regained power.

Mr. Drew also exhibited a boy, aged 5 years, in whom a fall had caused a Separation of the Lower Epiphysis of the Humerus, with displacement inwards.

Dr. J. D. ROLLESTON showed charts and photographs of a case of Gangrene of the Leg following Diphtheria in a boy aged 13 years. No antitoxin had been given, and when seen on the seventeenth day the right leg below the knee was cold and anæsthetic. Dilatation of the heart and a temporary discolouration in both legs ensued. On the thirtieth day there was commencing gangrene of the left leg and obliteration of the pulse in the popliteal artery. Amputation through

the knee-joint was subsequently performed and recovery was uneventful.

Dr. ROLLESTON also showed charts and photographs of Concurrent Scarlet Fever and Chicken-pox. The patient, a boy, aged 8 years, had been exposed to chicken-pox three weeks previously, and was admitted with a typical scarlet fever throat and rash. On the following day the varicella eruption appeared. Subsequently there was a profuse desquamation which confirmed the diagnosis of scarlet fever. The child made a good recovery.

Dr. G. A. SUTHERLAND exhibited a female, aged 3½ years, the subject of Recurrent Tetany. The attacks began seven months previously after prolonged indigestion and abdominal distension. The tetany was typical, facial irritability being marked at times and laryngeal stridor occasionally present. There were no signs of active rickets.

Dr. J. B. MOLONY and Dr. H. D. ROLLESTON showed a case of Idiopathic Hypertrophic Dilatation of the Colon, with skiagrams. The patient, a male, aged 3 years, was weaned at the sixteenth month, and then had bouts of constipation with progressive abdominal distension. The bowels were very obstinate, and in spite of a ravenous appetite the child became emaciated. Bilious vomiting occurred from time to time, and peristalsis along the course of the colon was observed, but was unaccompanied by pain. Skiagrams taken after a bismuth meal showed an enormously distended bowel in the region of the ascending colon and a normal transverse portion, while a tube containing a soft wire passed into the anus indicated a distended rectum extending up to the diaphragm.

Mr. C. T. DENT exhibited a child, aged 4 months, with "Congenital Elephantiasis" of the Right Arm, a condition allied to cystic hygroma. There was also a superficial nævus or condition of cavernous angioma. The bones appeared normal in a skiagram but were probably longer than in the corresponding limb.

Dr. LEONARD GUTHRIE exhibited a case of Congenital Insufficiency of the Soft Palate in a girl aged 9 years. Regurgitation of fluids through the nose occurred during the first five years of life but not afterwards. The speech was marked by rhinolalia. The soft palate was normal in appearance but motionless on phonation and on stimulation. The condition was thought to be one of muscular insufficiency rather than of submucous cleft palate.

Mr. P. G. LEE sent the report of a case of Deficiency in the Interventricular Septum and Patent Ductus Arteriosus in a child aged 7 years.

The cases were discussed by the PRESIDENT, Dr. PORTER PARKINSON, Mr. DREW, Dr. LANGMEAD, Dr. PARKES WEBER, Mr. MUMMERY, and Dr. WHIPHAM.

MEDICO-LEGAL SOCIETY.

Presidential Address.

AT a meeting of this society held on Oct. 25th,

Sir JOHN TWEEDY, the President, delivered an address upon the Influence of Social and Legal Restrictions on the Practice of Medicine. The history of medicine, he said, including surgery, furnished many instances of the deterrent effects which various regulations and restrictions, risks and penalties, had had upon the practice of medicine. In some cases the restrictions and penalties had been imposed by external authority, in others they had been imposed by real or by quasi-medical authority, and in others they had had their origin in the peculiar civil and social conditions of the time. Besides these there had been esoteric influences at work, due to the difficulties and dangers inherent to practice at a time when knowledge was imperfect and the methods of diagnosis and treatment defective and uncertain. Egyptian medicine and its practitioners had been famous in very early times. In the fourth book of Homer's Odyssey we were told, "In Egypt each man is a physician skilled beyond all mankind." Herodotus, writing in the fifth century B.C., stated that medicine was practised in Egypt on a plan of separation, each physician treating a single disorder and no more. And so the country swarmed with medical practitioners, some undertaking to cure diseases of the eye, others of the head, others again of the teeth, others of the intestines, and some diseases which are not local. This elaborate specialisation might in one sense be regarded as evidence of a high degree of proficiency, but it was also evidence of a somewhat restricted training, inasmuch as the practice of most of the specialties was hereditary and each person studied only one specialty. Medical knowledge and skill had attained their high level under the fostering care of an hereditary priesthood, but after a certain stage of development was reached the sacerdotal influence proved hostile to all experiment and progress. Egyptian physicians were obliged to treat their patients according to the rules laid down in those parts of the sacred books of Hermes which dealt with the body and its diseases. The death of a patient was a capital crime if it was found that he had been treated in another way. It was true that deviations from, and approved additions to, the sacred prescriptions were occasionally made, and Aristotle observed that even in Egypt a physician was allowed after the fourth day to alter the treatment prescribed by authority, while if he did this before he did it at his peril. In striking contrast to the rigid regulation of Egypt it might be noted that in ancient Greece there seemed to have been no liability for malpraxis, while in regard to ancient Rome, Pliny complained that there was no law to punish the ignorance of physicians, a physician being the only person who could kill a man with impunity. From the recently discovered code of laws promulgated by Hammurabi about 2300 B.C. it had been learnt that liability for malpraxis was severe in ancient Babylon. If a medical man treated a person of position for a severe wound with a lancet of bronze and caused the patient to die, or opened an abscess of the eye with a bronze lancet and caused the loss of the eye, the surgeon's hands were to be cut off. With such a penalty in prospect it was surprising that there had been anyone willing to undertake the treatment of any surgical case whatever. The retaliatory mode of settling a surgeon's bill in the time of Hammurabi was, however, scarcely less drastic than that which obtained in Europe 3000 years later. In the plague which visited Europe towards the end of the sixth century one of the victims was Austregild, Duchess of Burgundy. Prior to her death she accused the physicians of administering potions intended to kill her, and she entreated the King to avenge the crime. After the obsequies had been performed the King discharged the oath which he had freely given, and satisfied the posthumous desire of the princess by slaying her surgeons according to the old Teutonic law. The laws of the Visigoths, for example, laid down that if a physician blundered in blood-letting when the patient was of noble birth so as to debilitate him he should pay a fine of heavy damages. If the patient died the surgeon was delivered over to the nearest relatives of the deceased, who thereafter became the absolute arbiters of his life and death. In the early part of the fourteenth century Pope John XXII. having accused his physician-barber of seeking to bring about his death by sorcery and poison had him flayed alive. The same Pope burnt at Florence another of his physicians as a sorcerer, upon the denunciation of a professional colleague, and yet the Pope himself was a believer in astrology, sorcery, and witchcraft. About the same time John, the blind King of Bohemia, who was killed at the battle of Crecy wildly but heroically fighting at the head of his knights, caused the French surgeon who had failed to cure his eye to be sewn up in a sack and thrown into the river Oder. The legal, social, and civil penalties to which surgeons in the Middle Ages were exposed accounted for much of the timidity and reserve of mediæval surgery. Other causes peculiar to the state of surgery at that time were the ignorance of anatomy, the dread of hæmorrhage and the imperfect means of arresting it, and not least, perhaps, the contempt with which surgery was regarded by the clerical physicians of that time. "O God," exclaimed the famous Italian surgeon, Lanfranc, towards the end of the thirteenth century, "why is it that there is now so much difference between a physician and a surgeon, except that physicians have abandoned manual operations to laymen? *They* say it is because they disdain to work with their hands, but *I* believe it is because they do not know how to perform operations." Leopold Duke of Austria, the captor of Richard Coeur de Lion, had had his leg fractured by the kick of a horse. The limb mortified and amputation was necessary, but no surgeon could be found willing to undertake the operation. At length, unable to bear his pain, the operation was performed by the Duke himself holding an axe to the limb while his

chamberlain struck the axe three blows with a mallet. But the Duke's sufferings continued and the inflammation spread to the body. The bishops seeing him in such a state of misery and suffering admitted him to the communion of the faithful, "after which," said Roger of Wendover, "he expired in dreadful agony."

The scarcity of surgeons and their reluctance to undertake the treatment of serious cases in distinguished persons was exemplified in the case of Mathias Corvin, King of Hungary, who having been wounded in the arm in a battle with the Turks in 1468 caused it to be known throughout Europe that he would liberally reward anyone who would cure him. Many months passed before a surgeon offered his services. At length Hans of Dockenberg, a surgeon living at Strasburg, went to Bohemia, cured the king, and returned to his home rich in rewards and reputation. The dread of undertaking the treatment of serious cases was almost an obsession with mediæval surgeons. Guy of Chauliac, who flourished in the fourteenth century, and was the greatest European surgeon from the time of Hippocrates to his own day, warned surgeons against undertaking what he designated "bad cures"—*malas curas*. In Guy's case the warning was mainly based upon considerations of the personal risks to which the surgeon exposed himself. It was noteworthy, however, that the writer of the Hippocratic treatise "De Arte" also advised physicians not to undertake desperate cases, but it was not the dread of personal consequence that influenced him. It was the observance of an enlightened and logical principle. "Medicine," he said, "is the delivering of sick persons from their sufferings, and the diminishing the violence of diseases, and not the undertaking of treatment of those who are overcome by sickness, because the medical art here is of no avail." He argued that medicine was an art, and when a person was afflicted with a malady beyond the power of the therapeutical resources of medicine one could not expect art to triumph. The consideration of the difference in attitude between the Hippocratist and the surgeons of the Middle Ages suggested the inference that wherever and whenever the medical profession and medical practice had been most highly organised, the penalties for failure and ill-success had been most humane; and wherever they had been less organised the penalties had been harsh, vindictive, and often inhuman. In the more highly organised state of medicine practitioners had been better educated and more skilful, bolder and yet more cautious and circumspect, and therefore more trusted. When the organisation had been imperfect the number of educated physicians and surgeons had been fewer, while quacks and charlatans had been most numerous and most unconscionable. Brunus, writing in the middle of the thirteenth century, stated that the majority of those who practised surgery in his time were uneducated, rustic, and stupid. Many of the surgical practitioners from the fourteenth to the sixteenth century belonged to a special class called Operators. These practitioners performed operations which were either forbidden to the clerical physicians or were abandoned by the Masters of Surgery, such as hernia and cataract; in fact, all the operations the consequences of which might be grave or fatal. Not a few of the operators belonged to the category which Guy of Chauliac, for good reasons, designated "coureurs." They had no fixed abode, but led a wandering life, travelling from town to town, and from country to country, in search of patients and of cases requiring operation. Pierre Franco, who lived in the middle of the sixteenth century, was a distinguished and skilled member of this class of operators. He complained more than once of the contempt which the physicians of the day had for the work of surgery and for the operator. And he observed, not without a touch of acerbity, that if a patient died in the hands of the physician, the physician was always excused in some degree, and so also with a surgeon who did not practise operations; "but when what *we* undertake does not always succeed as happily as we could wish, we are called *murderers* and *executioners*, and have often to take to our heels."

Upon one other aspect of the subject Sir John Tweedy touched in a few words in conclusion. In ancient Greece and in ancient Rome slaves were employed to do menial tasks and much of the industrial work. There were, however, some slaves of a higher order who were skilled in branches of learning or of art, and who acted as secretaries (like Cicero's beloved Tiro) or copyists, librarians, pædagogi or tutors of children. Some had considerable knowledge of medicine and surgery. While these gifts generally ensured good and even kindly treatment, they often lessened the chances of gaining complete freedom. The slave was often manumitted, but he still remained in a position of subordination to his master, and could seldom return to his native land if he so desired. Sir John Tweedy trusted that his remarks had been sufficient to establish his thesis—viz., that the restrictions and restraints placed upon the practice of medicine in former times, and the penalties incurred under liabilities for malpraxis, had done much to hamper the practice of surgery and to check the progress of medicine. A glance at the existing law relating to the medical profession sufficed to show how far they had travelled on the path of reason and humanity. In this respect at least it might be said that they had passed from contract to status. No medical man now made a contract guaranteeing a cure. Chief Justice Tindal laid it down that "everyone who enters a learned profession undertakes to bring to the exercise of it a reasonable degree of care and skill. He does not undertake if he is an attorney that at all events you shall win your case; nor does a surgeon undertake that he will perform a cure, nor does he undertake to use the highest possible degree of skill, but he undertakes to bring a fair, reasonable, and competent degree of skill." So also with respect to penalties. Chief Baron Pollock in the case of R *v* Crick remarked: "It would be most fatal to the whole efficiency of the medical profession if no one could administer medicine without a halter round his neck." Similarly Mr. Justice Park: "It would be a dreadful thing if a man were to be called in question criminally whenever he happened to miscarry in his practice."

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Cases, &c.—Development of Multiple Growths.—Pyloric Stenosis in Infancy.

A MEETING of this society was held on Oct. 27th, Dr. T. R. BRADSHAW, the President, being in the chair.

Mr. C. G LEE showed a case of Enlargement of the Pituitary Body. The patient was a man, aged 32 years, who had been married for five years but without children. Four years ago he suffered from diabetes insipidus. His recovery was followed by general weakness and marked increase of adipose tissue, his weight increasing from 11 stones 7 pounds to 13 stones 10 pounds. Two and a half years ago the vision began to fail. On examination there was marked adiposity; no signs of acromegaly; the viscera and blood pressure were normal. There was marked optic atrophy and the fields of vision were obliterated save for small symmetrical areas on the nasal sides to 20°. There was loss of sexual power.—Dr. C. THURSTAN HOLLAND showed on the illuminated screen excellent X ray photographs demonstrating the enlargement of the sella turcica.—Mr. LEE considered that the symptoms of the patient indicated a diminution of the function of the gland.—Dr. W. B. WARRINGTON alluded to the clinical features present in five cases of this lesion which he had seen in Liverpool.—Dr. W. BLAIR BELL mentioned the differences in function of the anterior and posterior lobes, and pointed out that it was only when there was disease indicating affection of the anterior lobe or hypophysis that surgical procedure could be contemplated.—Mr. R. W. MURRAY said that the results of operation upon the hypophysis had in the last few years been encouraging. This was especially the case in the infantile types associated with excess of fat, loss of hair, and loss of sexual desire. Opening and drainage of the cyst often found in these cases had sometimes been followed by complete relief.

Dr. THOMAS BUSHBY read notes of a case in which Multiple Growths had developed in the subcutaneous tissues, associated with an Enlargement of the Thyroid Gland. The growths were extremely vascular, two of them having a distinct nævoid appearance on their summits. One of the smaller growths had been removed and the microscopical appearance favoured the view that they were metastases of an adrenal rest-carcinoma.—Dr. ERNEST E GLYNN pointed out the resemblance of the tumour to fœtal thyroid. The so-called hypernephromata were often derived from the kidney itself, not from the suprarenal rests.—Mr. G. C. E. SIMPSON

alluded to the fact that metastases from the thyroid gland might appear before signs of malignancy in the gland itself.—Dr. WARRINGTON alluded to the association of disturbance of function in the various glands with internal secretions.

Dr. J. HILL ABRAM related the clinical features of two cases of Long-continued Fever of obscure causation. He mentioned the modern methods of investigation in such cases, and stated that he attached more importance to a negative diazo reaction than to a negative serum reaction in the exclusion of typhoid fever.

Dr. N. PERCY MARSH introduced the subject of Pyloric Stenosis in Infancy by referring to the now generally accepted view that there are two distinct types of this disease, the one a true congenital pyloric stenosis, the other a condition in which pyloric spasm is first induced, and that this eventually leads to hypertrophy of the organ, with stricture of its lumen. He then described in detail the signs and symptoms as seen in five cases which had recently been under observation, especial stress being laid upon the character of the vomiting, of the stools, and the appearance of the peristaltic wave. Cases showing the excellent results which followed systematic washing out of the stomach and careful dieting were described in detail. Dr. Marsh expressed the opinion that in every case, however severe the symptoms, medical methods should first be tried; if the infant did not show improvement evidenced by diminution of the vomiting, improvement in the condition of the stools, and, most important of all, by increase in the weight, then the surgeon should be called in before the infant is so emaciated as to make any form of treatment almost, if not entirely, hopeless.—Mr. K. W. MONSARRAT demonstrated the morbid anatomy of the disease and discussed the indications for operation as illustrated by one of Dr. Marsh's cases on which he had performed a posterior gastro-enterostomy. He considered that no explanation of the lesion other than that of hypertrophy as a result of over-action had been suggested. He said that the results of diet and lavage should be tested for from seven to ten days, and then if the child was losing weight an operation should be performed. He preferred posterior gastro-enterostomy to any other proceeding.—Dr. GLYNN stated that the stenosis arose from pure muscular hypertrophy of the pylorus which especially involved the circular fibres. He mentioned a similar case in a man, aged 43 years, in which the muscle near the pyloric ring measured three-eighths of an inch in thickness.—Dr. HUBERT ARMSTRONG regarded the hypertrophy as a congenital malformation and could not conceive how spasm in the feeble pylorus of the fœtus or infant could possibly produce it. The malformation was one of excessive development and therefore need not be expected in association with other congenital defects which, with few exceptions, were those of arrest or deficiency.—Mr. R. C. DUN agreed that medical treatment should first be given a trial. Rapid improvement usually resulted where the spasm was the predominant factor. If under medical treatment there was progressive loss of weight for several days operation should be performed without delay. Cases which remained stationary under medical treatment should be operated on after three or four weeks. Posterior gastro-enterostomy was likely to prove more satisfactory than pyloroplasty.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The autumn meeting of the Northern and Midland Division of this association was held at the kind invitation of Dr. C. L. Hopkins at the City Asylum, Fulford, York, on Oct. 20th, Dr. Hopkins being in the chair.—Dr. J. Middlemass read a paper on Hereditary Syphilis and General Paralysis. He commenced by apologising for bringing forward so well-worn a subject. The idea occurred to him some time ago that in cases of general paralysis where no history of personal syphilis could be ascertained an explanation might be found in hereditary syphilis. Probably most people were of the opinion that developmental or juvenile general paralysis was due to inherited syphilis, and in the great majority of the cases he had seen there was a clear history pointing in this direction. In one such case reported the Wassermann reaction had been found to be positive. He went on to suggest that in cases where there is no history of acquired syphilis, a positive Wassermann reaction might point to hereditary syphilis and not to the untruthfulness of the patient.—In the discussion which followed Dr Hopkins referred to the use of the Ross Jones test.—Dr. E. F. Trevelyan spoke of the relation of tabes to syphilis in families, and mentioned an interesting case.—Dr. C. K. Hitchcock considered that general paralysis depended on the temperament of the individual as well as on acquired or hereditary syphilis.—Dr. Bedford Pierce gave a most interesting account of his visit to the International Congress on Psychiatry held in Berlin from Oct. 3rd to 7th. After giving a short sketch of the arrangements made for the holding of the Congress and the cordial reception extended to the visitors, he briefly outlined the various items that were brought before the Congress, amongst which may be mentioned papers on Asylum Planning; Work as a Therapeutic Agent; The Boarding-out of the Insane—illustrated with lantern slides exhibiting its working in Hungary; The Significance of the Wassermann Reaction; Mental Diseases in the Army and Navy; Sleeping Sickness. Perhaps the most interesting features of the congress were an exhibition of models of various asylums in South Germany; kinematograph films showing the movements of the insane; and an excellent kinematograph exhibition of micro-organisms, showing in a most striking way their movements, particularly in relation to the red blood corpuscles. Amongst those exhibited in active movement were spirochæta pallida and various spirilla and trypanosomes.—Dr. T. W McDowall thought that some demonstration similar to those shown in Berlin would be very instructive if exhibited at one of the general meetings of the association in London.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 19th, when Professor H. Alexis Thomson of Edinburgh delivered the inaugural address on "Le Rheumatisme Tuberculeux" of Poncet of Lyons. He remarked on the importance to medical men of looking on subjects through new spectacles. With this object he intended to present the ideas of Poncet of Lyons before the society. He had no doubt that the ideas of Poncet would not altogether meet with approval, but he believed that they would have the effect of stimulating thought. Briefly, all those lesions of the body to which we were unable to assign a definite pathological cause Poncet regarded as being due to a tuberculous intoxication. This, too, in spite of the fact that by no clinical or pathological process could the presence of tuberculous disease be demonstrated. In order to pave the way for Poncet's views, Professor Thomson dwelt on the pathology of joints. Eburnation of the articular surfaces had hitherto been regarded as typical of osteo arthritis, but Professor Thomson showed a bone with ivory eburnation surrounded by caries typical of tuberculous disease. Bony ankylosis had generally been regarded as due to suppuration, yet he showed another specimen clearly of a tuberculous nature. Two specimens of bony ankylosis of the vertebral column were hard to explain except on the tuberculous hypothesis. How often, too, did they see cases of fringes and loose bodies in joints and arborescent lipomata in joints which later became typical tuberculous joints? Cases that were labelled multiple osteo-arthritis or rheumatic arthritis most commonly ended in phthisis. They generally found a tuberculous family history as well, and most of them had seen the transformation of rheumatic arthritis into white swelling. Then, too, they saw the association of undoubted tuberculous disease of one joint with polyarthritis of the joints of the fingers. Turning to clinical manifestations, they had a variety of "growing pains" or arthralgia (Poncet). These cases invariably recovered, therefore it was assumed that they could not be tuberculous. Poncet maintained they were cases of an attenuated tuberculous toxin. The cases of acute arthritis, usually polyarticular, affecting the large joints of young adults, attended by fever and uninfluenced by salicylates, might disappear and recur or become chronic, terminating in ankylosis, or might be transformed into ordinary tuberculosis. True rheumatism did not result in bony ankylosis, and Poncet declared that these cases were tuberculous. Poncet carried his theory beyond joints. From analogy of the membrane of the joints he considered that the serous membranes of the pericardium, pleura, testis, and brain, &c., might similarly become affected by tuberculous lesions and lead to tuberculous adherent pericardium, tuberculous pleurisy, and meningitis, &c. To the same origin he assigned the cause of aortitis, phlebitis, neuralgia, ocular lesions, colitis, and thickening of the pylorus. Following his theory, Poncet declared that these cases did better on an antituberculous treatment than on a spa treatment. Although finding it difficult to agree with al

Poncet's theories, Professor Thomson thought that they should recast their views of these lesions in their practice.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—At the opening meeting of this society an interesting presidential address was delivered by Dr. William Mitchell upon Diagnosis by Means of X Rays. He said that the discovery of the X rays by Roentgen had made a great addition to our methods of diagnosis. The last five years, by the improvement in apparatus, had immensely increased the possibilities of this form of diagnosis. Fluoroscopy and skiagraphy were the chief methods employed. Fluoroscopy had the advantage of a direct inspection of an object which could be moved while being examined, but it was difficult to get detail, and might be dangerous owing to the difficulty of cutting off undesired rays. Skiagraphy, with modern instruments, was rapid, almost instantaneous; great detail was possible, and the disadvantage of a picture in one plane could be got rid of by stereoradiography, by the projection methods of Mackenzie and others, and by photography in planes at right angles. Difficulties still remained to those who could not afford a series of tubes of different degrees of "hardness" and in all cases of stout patients. By the use of these processes we could discover and localise: (1) foreign bodies, if metallic, glass (calcium or lead, but not potash or soda), but not wood; (2) fractures and dislocations; and (3) various pathological conditions in (*a*) bone, e.g., caries, gumma, growth; (*b*) soft tissues, dense fibromata or calcified deposits; (*c*) lungs, phthisis, tumour, pneumonia, mediastinal growths, pleural and pericardial effusions, displacements of heart, vessels, and diaphragm, and aneurysm. In the abdomen there was a small range of possibilities, owing to the density of the organs. Thus aneurysm would be demonstrated only by erosion of vertebræ. In the alimentary system the teeth gave good pictures, caries being readily visible, and the use of bismuth carbonate in doses up to 4 ounces, suspended in porridge or otherwise, revealed strictures and diverticula of the œsophagus, gastric dilatation, enteroptosis, and hour-glass contraction. Gall-stones except when coated with lime were almost invisible, but renal, ureteral, and vesical stones could be made out with almost absolute certainty. It was important here to have the landmarks afforded by the muscles, the ribs, and the transverse processes, and to avoid the fallacies of calcareous glands. In neurology cranial tumours, unless ossifying or arising from bone, were not visible, but the osteoclastic results of tumour, as in pituitary tumours, were easily made out. The condition of the sella turcica could also be made out in cases of acromegaly. Examination of the spinal column was not easy, but in children and in the cervical and lumbar regions valuable results had been obtained which had a bearing on nervous conditions. Eighty lantern slides made from skiagrams and some stereoscopic skiagrams were then shown.

BATH CLINICAL SOCIETY.—A meeting of this society was held on Oct. 7th, Mr. F. Lace, the President, being in the chair.—Dr. A. J. B. Leckie showed Specimens of an Ovarian Fibroid Undergoing Calcification and Cystic Degeneration weighing 30 pounds, and a Sarcoma of the Left Kidney involving the twelfth dorsal and first lumbar vertebræ, right kidney, and liver, weighing 4 pounds 10 ounces, which had been removed from a child, aged 4½ years, after death, whose weight three weeks before she died was 21 pounds.—The President then gave a short Introductory Address.—Dr. F. G. Thomson read a paper on a case of Acute Toxic Polyneuritis in a boy aged 19 years. Paralysis first affected the hands and feet and within ten days of onset caused complete palsy of all four limbs and of both sides of the face. The muscles of the neck, the intercostals, and the lumbar muscles were also extensively paralysed. Sensory symptoms were confined to slight numbness of the fingers and the soles of the feet. The deep reflexes were lost. Considerable wasting occurred in the scapular muscles and the muscles of the forearms and legs. The extensors of the fingers and toes especially suffered. Recovery was complete in two years from the onset. Treatment consisted in rest, good diet, massage, galvanism, and faradism. Strychnine was given from time to time.—Dr. T. Wilson Smith read a paper upon Some Varieties of Intermittent Albuminuria. Referring to postural or orthostatic albuminuria he pointed out that none of the theories of its causation seemed completely satisfactory. He had watched some cases of postural albuminuria over periods reaching to 19 years, but had not seen degenerative cardio-vascular changes occurring, nor the tendency to faint when in the upright position which Dr. Clement Dukes had described. He had, however, noticed lassitude, aching across the loins, anæmia, loss of appetite, and in one case prolonged attacks of nausea and vomiting. Referring to intermittent albuminuria due to substances passed in the urine, which irritated or injured the renal epithelium, he detailed cases of oxaluria after copious ingestion of strawberries, &c., producing temporary albuminuria; also cases due to copious passage of uric acid crystals, in some cases forming complete casts of uric acid.—Dr. Leslie H. Walsh read notes of a case of a Transient Unilateral Swelling in the Right Parotid Gland, in all probability of nervous origin.

Reviews and Notices of Books.

Practical Pathology. A Manual for Students and Practitioners. By G. SIMS WOODHEAD, M.A. Cantab., M.D. Edin., Hon. LL.D. Toronto, Fellow of the Royal Society, Edinburgh; Professor of Pathology in the University of Cambridge. Fourth edition. With 275 coloured illustrations. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 798. Price 31*s.* 6*d.* net.

Professor Woodhead's well-known book on Practical Pathology has long been out of print, and we welcome the appearance of this new edition, for no other work has appeared quite to replace it or to give in such an original, interesting, and thoroughly practical manner the information which the student and practitioner alike seek in a manual of pathology. While retaining its original aims and general form it has obviously been carefully revised and largely rewritten so as to incorporate the many new methods which have been introduced, and the advances in our knowledge of pathological processes which have accrued in the 18 years that have elapsed since the publication of its predecessor. To say this is practically to say that we are reviewing a new book.

The chief features of Professor Woodhead's book, which invest it with its special character, are the admirable descriptions given of the morbid anatomy and histology of diseased organs, the clear though concise accounts afforded of pathological processes, and the excellent coloured illustrations of microscopical specimens with which the book abounds. These illustrations are of a very high order and reproduce with remarkable fidelity the appearance of specimens prepared and stained by special methods.

The first chapter describes the technique of post-mortem examinations and the various special methods necessary to expose the different organs. General directions are also given for the collection of material for bacteriological and microscopical examination. The second chapter contains full details (including the formulæ of all reagents employed) of all the ordinary and of the most important special methods employed in the preparation of specimens for microscopical examination. These descriptions are worthy of special commendation, since they are given in such a manner as to be practical, for in each case it should be easy to carry out the method from the directions given.

In dealing with the results obtained from a practical study of pathological processes, Professor Woodhead first treats of the subjects of inflammation, organisation, and repair. He describes the various cells found in the blood, in inflamed and irritated tissues, and indicates what is known of their origin and functions. He next considers the results of inflammation in certain serous membranes, and then describes the healing of wounds and of ulcers. He then brings out clearly the relation of inflammation to repair, so that a student carefully working through this chapter should be

able, with the aid of specimens, to get a very clear idea of these fundamental pathological processes.

The morbid processes in the various organs and systems of the body are then described categorically in separate chapters. The various diseases of the liver are first considered; among these the account given of the forms of cirrhosis and of the stages of the interstitial changes causing these conditions may be specially mentioned as being more simply and clearly classified than is often the case in text-books on pathology. The morbid changes in the heart are next examined, and the various degenerations, infiltrations, and inflammations are clearly differentiated and described. The chapter on diseases of the blood-vessels which follows gives a useful account of the changes in atheroma and endarteritis obliterans, the latter condition being described as it occurs in syphilis, in healing wounds, interstitial inflammations, and in Bright's disease.

In the section on diseases of the alimentary canal an interesting account of the various forms of ulceration is given, and the distinctions between tuberculous and typhoid ulcers are given in tabular form. In the section on bones and joints a clear description is included of the changes in rickets, but it is a little surprising to find infantile scurvy referred to as "an exceedingly acute form of rickets." The chapter on the nervous system is short in comparison with its importance, but it contains some excellent illustrations. Tumours and parasites are also dealt with, and a considerable amount of valuable information is afforded. The plates showing the parasites of kala-azar, of syphilis, and of sleeping sickness are also worthy of notice.

Professor Woodhead's book is a valuable addition to the student's and to the practitioner's library.

The Medical Complications, Accidents, and Sequels of Typhoid Fever and the Other Exanthemata. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, and E. J. G. BEARDSLEY, M.D., L.R.C.P. Lond., Assistant Physician to the Out-patient Department of the Jefferson Medical College Hospital. With a Special Chapter on the Mental Disturbances following Typhoid Fever, by F. X. DERCUM, M.D., Professor of Mental and Nervous Diseases in the Jefferson Medical College. Second edition. Philadelphia and New York: Lea and Febiger. Pp. 406. Price $3.25.

IN the first edition of this work the authors pointed out that although systems of medicine and text-books innumerable deal with the ordinary manifestations of typhoid fever, the references to its accidents, its complications, and its sequels are necessarily brief. Nevertheless, anyone who has had even a limited experience with this disease has met with cases in which the malady has been so altered in its course by intercurrent affections as to be quite unusual, and to call forth all the knowledge in diagnosis and therapeutics the physician possesses. The work now under consideration deals in a comprehensive and instructive manner with these aberrant forms and the courses they may pursue. During the ten years which have elapsed since the first edition appeared the literature dealing with typhoid fever has greatly increased, and the advances which have been made in the study of the disease by bacteriological methods have added considerably to the knowledge of many of its complications and sequels. The book has been punctiliously brought up to date and will be found of real value as a work of reference. The chapters on "Varieties of Onset" and on "The Complications of the Period of Convalescence" are of especial interest. In this edition chapters dealing with the complications and sequels of variola, scarlet fever, measles, chicken-pox, and rubella have been carefully prepared and added to the original text. In discussing variola especial attention is rightly drawn to "the prodromal rashes and dermal complications" of this disease. These rashes vary widely in type and often serve to obscure the true diagnosis for hours, and it may be for several days. It is important that such eruptions should be known and recognised. A good account is given of them in this work, and a study of the descriptions given will be of use in actual practice. In scarlet fever the complications and sequels are probably more numerous and important than in any other of the infectious fevers, with the exception, perhaps, of typhoid fever. Rhinorrhœa, otitis, ulcerative stomatitis, tonsillitis, adenitis, nephritis, ulcerative and gangrenous angina, broncho-pneumonia, ocular complications, and other conditions occurring in connexion with scarlet fever are well described and discussed.

The chapter on the mental complications of typhoid fever, by Dr. F. X. Dercum, will be found of considerable interest. He divides these mental disturbances into three groups: (1) those which develop during the prodromal or initial period; (2) those which arise during the continuance of the fever; and (3) those which occur during or subsequent to convalescence. The forms of insanity which arise during or subsequent to convalescence are the most important and are described in detail. The remarks on prognosis are interesting. Dr. Dercum is of opinion that the prognosis depends largely upon the period at which the symptoms appear. Prodromal insanity, especially grave prodromal delirium, tends in a large number of cases to end fatally. The prognosis of the mental complications arising during the fever is almost uniformly good. The various forms of mental derangement which occur as sequelæ of typhoid fever also offer a favourable prognosis as a whole, although in some cases recovery is incomplete, and other cases may pass into hopeless chronicity and dementia.

It will thus be seen that this volume contains much that is interesting to those engaged in general practice, and in it are presented in compact form a description of many problems that may well puzzle those who have not had an exceptionally large experience of the infectious fevers.

The Public Milk-supply. By HUGH A. MACEWEN, M.B. Glasg., D.P.H., Assistant Medical Officer of Health, Cumberland. London: Blackie and Son, Limited. 1910. Pp. 182. Price 2*s.* 6*d.* net.

THE author has brought together a great deal of information as to the practical details of milk-supply in this well-illustrated manual. He has had exceptional opportunities of becoming familiar with the practical side of dairy farming; and if farmers, cowkeepers, and dairymen would make themselves acquainted with the improved methods that have of late years been brought into use for the protection of this indispensable article of food-supply, and that are here described and figured, much good would result. Dr. Macewen adopts the very sensible position that the present 3 per cent. standard for fat in milk is unsatisfactory; not that a genuine sample of mixed milk is likely to fall below this standard, but because it is possible that individual samples may occasionally do so, without any fraudulent practice; and because it is not fair that a farmer who sells rich milk, containing perhaps 5 per cent. fat, should get no more for it than his neighbour, whose cow yields milk containing the bare minimum. "Milk sent to creameries is paid for according to the amount of fat it contains. Why should not milk be sold for ordinary consumption in a like manner?" The distribution of milk in sterilised bottles is advocated, the milk having been previously strained and chilled. On p. 79 we read: "So-called sterilised milk refers to milk that has been simply boiled, and it is in that sense that we shall continue to use" the expression. This, however, is not

accurate; milk may be sterilised without being boiled, and boiled milk is not necessarily sterile. The author quotes the statement that the constant use of boiled milk has been known to give rise to rickets, adding that the results obtained in connexion with infant milk depôts where the milk has been pasteurised have not always been satisfactory. More details might have been afforded on this debated question, and the relative importance of the risks from polluted raw milk and from treated milk considered. Admitting the possibility of harm to the infant from feeding with treated milk, one must also allow that suitable precautions can be taken; while at present the dangers of a raw milk-supply for town children are more numerous and important and far more difficult to guard against. The information as to the housing of dairy animals is very useful and the illustrations are excellent. A special section is devoted to the law of milk-supply. Dairy products are but lightly touched on, and more information might have been given about butter; the quantity of salt used is not mentioned. A useful summary of the law relating to adulteration is appended.

Surgery and Pathology of the Thyroid and Parathyroid Glands. By ALBERT J. OCHSNER, A.M., LL.D., Professor of Surgery in the Medical Department of the University of Illinois; and RALPH L. THOMPSON, A.M., M D., Professor of Pathology in the St. Louis University School of Medicine, St. Louis. With 57 illustrations in the text and 40 full-page plates, 4 of the plates being in colours. London: George Keener and Co. 1910. Pp. 391. Price 25*s.* net.

ALTHOUGH goitre has been known for more than 2000 years, a very little time has elapsed since it was first recognised that the thyroid gland had a definite function, and that its presence, or the presence of a portion of it at least, is necessary for the health of life. The recognition of the true cause of cachexia strumipriva was really the starting point of the appreciation of the physiology and pathology of the gland. In many cases an enlarged thyroid is merely a source of discomfort to the patient because of the unsightliness which it causes, but cases do occur in which the enlargement is so great that it interferes materially with respiration or even with deglutition. In cases such as these, and even where no real interference with vital processes exists, the question of operative interference has to be considered; and the importance of the operation has fully justified the devotion within recent years of several text-books to the special study of the surgery of the thyroid gland.

The chapter on the history of the gland is of interest, the account of its development and its pathology is clearly written, and the series of plates illustrating the anatomy of the region of the thyroid as seen in successive stages of the dissection will help to make clear to the student the structures to be avoided in operations on the gland. The most important portion of this part of the book relates to the technique of the operation of excision. The authors believe that a general anæsthetic is preferable to any form of local anæsthesia, and the incision they recommend is horseshoe shaped, commencing a little above the upper border of the larynx on the one side near the anterior border of the sterno-mastoid, descending to about an inch above the upper margin of the sternum, and then rising again to a point on the other side corresponding to that from which it started. This incision certainly provides the surgeon with a very clear view of the field of operation. The several steps of the operation of excision are clearly described, the dangers which may be encountered are mentioned, and the methods of evading them are given. It is advised that a glass drainage-tube, surrounded by a layer of gauze, should be placed in the lower part of the wound or through a separate opening below.

The remaining portion of the book is devoted to the study of the parathyroid glands. These glands have been the subject of much controversy, some regarding them as of vital importance, and others looking upon them as merely undeveloped thyroid tissue. It must be confessed that a tendency of the present day is to appraise them as of more importance than formerly, and it is probable that the majority of those who have specially studied the subject will agree with the statement that complete removal of the parathyroid tissue results in the production of tetany. This is certainly the most elaborate account of the surgery of the parathyroids that has up to the present been published. Dr. Thompson describes the anatomy of the glands not only in the human subject but in many of the lower animals; the embryology and histology are given, and are followed by the pathology, but no definite suggestion is made as to their physiology. Cysts and tumours of the glands are described, and then comes an important chapter on the tetany which follows operative removal of these glands. He then describes what he calls somewhat curiously "mental tetany," that is to say, tetany arising apart from injury or operation, and he considers that in cases in which tetany follows dilatation of the stomach hypertrophy of the parathyroids is present. The chapter on parathyroid therapy is suggestive and contains references to most of the papers on the subject, and a useful and extensive bibliography of the parathyroid glands concludes the volume.

The book is well written, and, as might be expected in a subject still comparatively new, many views are expressed to which exception might be taken, but the authors in most cases are able to give good reason for the opinions they hold.

Handbuch der Vergleichenden Physiologie. (*Handbook of Comparative Physiology.*) Herausgegeben von HANS WINTERSTEIN in Rostock. Jena: Gustav Fischer. 1910. Band II., Erste Hälfte (Bogen 1–30), pp. 1–482 (1st, 2nd, and 3rd Lieferungen). Band II., Zweite Hälfte (Bogen 1–10), pp. 1–160 (4th Lieferung). Band II., Zweite Hälfte (Bogen 11–19), pp. 161–304 (5th Lieferung). Price 5 marks each part of ten sheets. The work will consist of about 30 "Lieferungen," or parts.

WHILE there are plenty of books and treatises on physiology—general and special—and also on bio-chemistry, there is, as yet, no completely comprehensive treatise on comparative physiology. The limits of the late "fifties" (1857) when Milne Edwards published the first volume of his "Leçons sur Physiologie," no longer bound our knowledge of this subject. Its importance is becoming recognised more and more, and indeed it must form the basis of all human physiology. Therefore both editor and publisher are to be heartily congratulated on this new and important venture, and we trust that both will reap their due reward. We wish this "Handbuch"—it is really an encyclopædia—every success. It not infrequently happens that when a large work like this is projected the editor proposes and the contributors—of whom in this case there are twenty in all—"dispose," and hence perhaps the reason why, instead of Vol. I., we have only the major part of Vol. II. (in five parts) before us, each part being composed of ten sheets, or 160 pages. When the work is complete it will consist of four volumes. Vol. I. will deal with the "Physiology of the Fluids of the Body and Respiration," Vol. III. with the "Production of Energy" and the "Physiology of Form," and Vol. IV. with the "Physiology of Sense Receptors, Conduction, and Response."

Up to the present time comparative physiology has been more or less like a partially explored continent, and even such data as have been obtained have not been arranged and codified systematically. The "Lehrbuch der Vergleichenden

Physiologie der Hausthiere" of Ellenberger and Scheunert (1910) is a text-book and deals only with the domestic animals. The general scheme of the present editor has been to leave to each contributor a free hand, but with the editorial injunction to keep in mind the "classes" of the animal kingdom, beginning with the protozoa and considering each class in detail. Again, he was faced by certain limits, botanical on one side; physiology of man and the higher animals, so far as this is treated of in the ordinary text-book, and morphology on the other.

Vol. II. deals with the physiology of metabolism and of reproduction. To Professor Biedermann of Jena is entrusted the subject of the "Intake, Elaboration, and Assimilation of Food," to which nearly 500 pages are devoted. No better "Fachmann" could be found than the versatile and erudite successor of Preyer. Starting off with a masterly account of the nutrition of plants and its relation to that of animals, including assimilation in chlorophyll-free plants, we are led on to the researches that deal with the assimilation of carbon, nitrogen, sulphur, and phosphorus in yeasts and moulds, and further on to what is practically a treatise on bacteria in all their varied functions, their chemistry and choice of food. Then follows a general review of the whole matter so far discussed and a long list of works of reference—an arrangement that is adopted in succeeding chapters. The down-grade processes of dissimilation, as determined by bacteria, are included, with a full discussion of the various fermentatations due to bacteria—the alcoholic, lactic, butyric, and other fermentations—the action of enzymes, proteolytic, fat-splitting, and those that act on carbohydrates; in fact, a full treatise is supplied on enzymatic action in all its varied phases, including a very full account of oxydases, making a comprehensive and interesting chapter. The author expresses himself guardedly regarding the probable action of animal oxydases, as the data are not sufficiently numerous. Then we touch upon the interesting subject of the dependence of enzyme formation on the kind of food used, a problem best known to human physiologists by the work of Pawlow, though bacteriologists have long been acquainted with corresponding results.

The second part deals with the Nutrition of the Protozoa as represented by the rhizopoda, gregarinæ, flagellata, and ciliata. A very full account is given of the work of Bütschli, Verworn, Rhumbler, Jennings, Jensen, Schaudinn, and others who have devoted much attention to the study of these ever-attractive unicellular organisms. The subject is one that interests all physiologists, zoologists, and botanists, for here is common ground. Here also the physicist comes in, for have not Berthold and Quincke given a theory of the importance of surface-tension in the intake of food by some of these lowly protoplasmic organisms? Not the least interesting are the classical experiments of Rhumbler, on the engulfing of a thread of shellac by a drop of chloroform and allied physical experiments.

Naturally, the infusoria are fully dealt with, and, in fact, the greater part of the third fascicule is taken up with this subject. The nutrition of sponges forms the third part, and it is treated in the same thorough manner (pp. 426–444), also with a full list of the chief papers added. Nearly 50 pages are devoted to the physiology of the cœlenterate group, but the third fascicule only takes us to actinia; and we must wait until the continuation of this subject is published. If the remaining "classes" of the animal kingdom are treated as fully then we may expect at least one other "Lieferung" on this subject.

We have before us also two parts of the second half of Vol. II. All Part 4 and by far the greater part of Part 5 are given up to a most interesting and comprehensive survey of the following subject, the Secretion of Protective and Useful Products, by Professor Fredericq of Liège, whose many-sided scientific and literary activities make him admirably adapted to deal with such a wide and fascinating subject. He deals with the subject from protozoa to mammals. The recent work of Richet on the poisons of actinia and their allies is introduced. It would be impossible to give in short compass a survey of the extraordinary mass of information which has been grouped in this form for the first time. Under the head of diseases supposed to be associated with fish diet we miss the name of Jonathan Hutchinson, and in the chapter on birds John Hunter's observations of the secretion of the crop of pigeons does not seem to be mentioned. The fifth part concludes with about 50 pages devoted to "the secretions"—i.e., the non-gaseous decomposition products, excluding unabsorbed nutriment, by R. Burian of Naples, whose researches on uric acid are so well known.

We can only repeat that this work is an encyclopædia—a vast storehouse of carefully garnered and correlated facts, which we feel sure will be gladly welcomed by all workers in physiology and zoology. We have nothing but praise for so commendable an enterprise and we wish it the marked success which it deserves.

LIBRARY TABLE.

Ionic Surgery in the Treatment of Cancer; with a Chapter on Ionisation in Surgical Tuberculosis and in Hæmorrhoids. By G. BETTON MASSEY, M.D., Attending Surgeon to the American Oncologic Hospital. London: Siegle Hill and Co. 1910. Pp. 243. Price 13*s.* net.—The value of the ionic treatment of disease is as yet not fully appreciated in this country, but it is probable that in the future it will be employed more widely than at present. This book, however, does not deal with the whole subject of ionisation in the treatment of disease, but it deals almost exclusively with the endeavour to treat malignant disease by means of metallic ions. Without going into the details of the method employed we may say that the process as described by Dr. Massey consists in introducing a metallic electrode coated with mercury into the substance of the growth and then passing a current through it to another pole placed on some other part of the body. Currents of several hundred milliampères are employed and anæsthesia is generally required. The author records and figures a number of cases in which he has employed the method. In most of those in which the growth was on the face successful results appear to have been obtained. With regard to malignant disease of the breast, improvement is recorded in many cases, and there are a few in which patients have lost all evidence of disease, but most of these are very recent. While agreeing that the method deserves a trial in some cases, we would urge that it should not be employed for operable cases, at all events in the present state of our knowledge.

A Practical Treatise of Diseases of the Skin for the Use of Students and Practitioners. By JAMES NEVINS HYDE, A.M., M.D., Professor of Dermatology in Rush Medical College, Chicago; Professorial Lecturer on Diseases of the Skin, University of Chicago, &c. Eighth and revised edition. Illustrated with 223 engravings and 58 plates in colours and monochromes. London: Baillière, Tindall, and Cox. Pp. 1126. Price 25*s.* net.—The text-book which has appeared during several editions under the joint authorship of Dr. Nevins Hyde and Dr. F. H. Montgomery achieved a world-wide reputation as a very trustworthy treatise on this difficult subject, and the present volume is a fresh edition which has been issued by Dr. Hyde alone, for he has been deprived by death of the help of Dr. Montgomery. The progress of dermatology

has required that the present volume should contain 250 pages more than the seventh edition, and we cannot say that any of the added material could well have been omitted. The main additions to the work have been many and some rearrangement has also been carried out; thus the growing importance of tropical diseases has induced Dr. Hyde to collect these affections together, and in the same way the affections of the nails. It is unnecessary to discuss fully so well-known a treatise, but we may say that it is a trustworthy account of the diseases of the skin, that it is written with moderation, and that the author is not afraid of expressing his own opinion. It is well illustrated both with black and white and coloured plates, and it can be thoroughly recommended to all who require something more than an elementary treatise on dermatology.

Saint Bartholomew's Hospital Reports. Edited by H. MORLEY FLETCHER, M.D Camb., and W. MCADAM ECCLES, M.S. Lond., F.R.C.S. Eng. Vol. LXV. London: Smith, Elder, and Co. 1910.—This volume is full of interesting papers. It commences with obituary notices of Sir Thomas Smith and Dr. W. J. Russell. Some interesting cases from the skin department are described by Dr. H. G. Adamson and a number of cases of artificial dermatitis are figured. Dr. Harold Pritchard describes a case of infective endocarditis due to a hitherto undescribed organism. A valuable paper is that on splenic anæmia by Dr. R. A. P. Hill; he comes to the conclusion that splenic anæmia includes two conditions: one of these is pernicious anæmia with enlarged spleen, and the other is splenic lymphadenoma; yet he looks upon the two conditions as varieties of the same disease, and he suggests that splenectomy should be used in the treatment of pernicious anæmia. Mr. A. J. Clark's paper on the detection of blood pigment in the fæces is likely to be useful, and he claims that the smallest quantity of blood entering the bowel, either in the food or by hæmorrhage, can be recognised in the fæces. Mr. W. Bruce Clarke reports two cases of lymphangioplasty; in both of them successful results followed. Mr. C. B. Lockwood has written on the surgical treatment of tuberculous mesenteric glands. Mr. C. Gordon Watson has analysed all the cases of perforation in enteric fever which have been operated upon in St. Bartholomew's Hospital up to the end of 1908. These are 27 in number and five recovered. The remaining papers consist of reports on X ray dermatitis: Dr. H. Lewis Jones writing on the avoidance of X ray injuries; Dr. H. G. Adamson on X ray dermatitis as it is related to dermatology; and Mr. L. Bathe Rawling writing on the surgical aspect of the condition. This group of papers is of the greatest value and gives an accurate statement of our present knowledge of the subject. The remainder of the volume deals with the registrars' reports and the additions to the museum.

Speech-Reading for the Deaf—not Dumb. A Book for the Use of those who have become Deaf after having acquired a Full Knowledge of the English Language. By A. J. STOREY, Headmaster of the North Staffordshire Blind and Deaf School, Stoke-on-Trent. London: Yellon, Williams, and Co., Limited; The Celtic Press, Chancery-lane, W.C. 1910. Pp. 166. Price 5*s.* net.—One of the greatest afflictions not of a mortal nature which may oppress the old or even those yet in middle life is the loss of the power of hearing. Many have questioned whether even blindness itself is not a less affliction than deafness. Whether this be so it is at least certain that to lose more or less completely the sense of hearing is a great deprivation, and therefore any means whereby the deaf man will be able to interpret what others say should prove an inestimable boon. The method which appears to be best suited for this is the learning of lip-reading, and this is comparatively simple to those who have already learned to speak. This book is, we think, the first that has been written with the object of teaching lip-reading to those who possess the power of speech; and it is admirably calculated to carry out its purpose. After a few chapters devoted to introductory matter, the science of speech, and the principles of lip-reading, a series of lessons is given on the various groups of sounds, and the student is instructed in apprehending the meaning and the interpretation of lip movements. The exercises are well chosen and they initiate the student gradually into the whole subject, and very useful hints are given for the prosecution of the study. We feel sure that the book will prove of immense use to many people. Deafness is often a great trial, not only to the deaf person himself, but to those who associate with him, and a careful study of the subject should give results which will prove of very definite benefit. Even when deafness is not severe the power of lip-reading may prove of value.

JOURNALS.

The Baby's World: a Practical Magazine for Mothers. Edited by J. JOHNSTON MACGREGOR. London: Ewart, Seymour, and Co. Price 6*d.*—The number for October completes the first half-year of the publication of this magazine, which aims at being a source of information with regard to everything a mother requires to know about herself and about the proper feeding, clothing, management, and education of her children. "The Rod and Pickle" is the title of a series of articles by Mary Cornwall on the Moral Education of Children, which promises to deal with this subject from a sensible point of view, not looking upon discipline as a punishment for the fault or a deterrent from future misdoing, but as the means of making a child realise the essential wrongness of particular acts and the unhappiness that follows the committal of a misdeed. The necessity to discriminate between faults and acts that are merely affronts to parental pride, and to appreciate the differences between wild, strong emotions and moral deficiencies is clearly pointed out, and the danger of moral precocity is not forgotten, for like the mental and physical, the moral nature of a child cannot be expected to mature in childhood, and a moral precocity is as likely to be followed by moral degeneration as is a mental or physical precocity. Such sensible articles as these will be read with profit and thoughtfulness by many parents who are in doubt as to the right course to pursue in checking or keeping within bounds those evidences of naughtiness which are often only the expression of uncontrolled and miniature emotions belonging to what may eventuate in a really fine character. We are of opinion that medical and surgical subjects cannot be written about in periodicals of the character of *The Baby's World* without either unduly alarming or dangerously informing the public upon medical and surgical points. Without a comprehensive knowledge of pathology and a familiarity with biological and physiological science it is impossible properly to appreciate etiological and therapeutical problems, and we cannot look with any approval upon the article entitled "A Mighty Atom" written by a medical man, and telling how the "tiny tubercular bacillus" affects the glands, joints, brain, and bowels of children.

THE NATIONAL FOOD REFORM ASSOCIATION.—The conference of matrons of hospitals and similar institutions, which the National Food Reform Association is convening, takes place at Caxton Hall, Westminster, to-day, Saturday afternoon, Nov. 5th. Miss Rosalind Paget will take the chair at 2.30 P.M., and a paper on the "Feeding of Nurses" will be read by Miss Musson of the Birmingham General Hospital.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 5, 1910.

Plague in Rats and Man.

THERE is no longer any ground for doubting that plague amongst rats is somewhat widely distributed in one corner of Suffolk, although its limitations cannot be determined until further investigation amongst the rodents in adjacent districts has been carried out. But enough has already been discovered to show what an extensive area may be involved in the matter of plague in rats without more than a single group of human cases occurring, and this in itself is a very reassuring circumstance, indicating how difficult it may be in this country under existing circumstances to bring about infection of human beings. Not only is the rat malady widespread but we have no precise knowledge as to how long this condition of affairs has obtained. There is apparently an impression locally that rat disease may have existed for many months or perhaps even longer, and the local press is searching the disease and death records of the past with the object of discovering cases suspicious of the human malady. Even if all such cases were to be accepted as positive no very startling results would be produced. But the fact must never be lost sight of that in India, China, and other countries where plague occurs the disease amongst rats is frequently associated with the same disease in the human species, while experience demonstrates conclusively that the rat disease may cause plague in man both by direct inoculation and through the medium of the flea.

That plague in India is frequently associated with and produced directly or indirectly by rat plague is certain, but there appears to be still room for further investigation with reference to the occurrence of plague in rats during periods when no human plague exists. Great Britain herself is not without previous experience of plague amongst rats, and in the year 1901, out of 1641 rats examined at Glasgow 30 were found to be infected. During the next four years there were nearly 3000 rats examined, and all with negative results; while in 1907, out of 7000 examinations one was found to have plague—a fact, slender though the connexion be, which leads to the reflection whether this solitary animal was the last dying ember of the 1901 outbreak or whether it was the result of some re-introduction of infection. Again, in the port of London between August 19th and Sept. 28th, 1908, of 162 rats found dead in certain of the warehouses several had died from plague. Researches made by Dr. KLEIN showed that this epidemic was of a mild and chronic character with a low degree of virulence, and while many persons were exposed to infection from these rats only one showed any signs of plague. Other illustrations of similar phenomena are to be found in the bibliography of plague, and these taken together rather point to the conclusion that plague amongst rats in a chronic and non-fatal form may have been more widely prevalent than has been generally recognised. The experience of rat plague in this country, and also in Australia, where, however, the mortality amongst human beings was sufficiently serious, seems to justify the conclusion that highly civilised populations, with the resources at their command and their sanitary habits, need have no apprehension of the results which accrue amongst Asiatic populations with their insanitary mud-floored and overcrowded dwellings and with their bare-footed inhabitants. But, in addition to these facts, there are other considerations which may have occurred to many of our readers who have been reflecting upon the Suffolk phenomena. For instance, Dr. C. J. MARTIN, of the Lister Institute, has drawn attention to the fact that the Indian or black rat, which formerly inhabited this country, has been largely swept out by the more voracious Norwegian or brown rat which, unlike the black rat, which is a house rat, largely frequents sewers and docks, and therefore is not, except in the docks, brought much in contact with man. This is certainly an important fact, but we gather that rats dead from plague have been found at considerable distances inland, a fact which would lend colour to the views of those who hold that the black rat is by no means so nearly extinct as is popularly imagined.

A matter of some bearing on the present prevalence of plague among rats in the eastern counties is the ability or inability of the rat to traverse the wide expanse of water presented by the estuary of the Orwell. Those who believe in the actual extermination of the rat over the area in which it was first found to be infected base hope upon the water-bound character of the country thereabouts. But we are afraid that their efforts may be attended by disappointment, inasmuch as rats pressed by hunger or pursuers will traverse bodies of water at least as wide as any of the estuaries in this country; indeed, it is related that rats have been observed at night crossing in swarms the waters of the Limfjord, a wide channel in Jutland, and these vermin are said to have been frequently seen swimming *en masse* across the straits separating the islands of the Faroe Archipelago. All these reflections are replete with interest for the naturalist, and the sanitarian may later have to take them into account, but at the present juncture there is an obvious duty which devolves upon the local authorities in compassing by every means in their power the destruction of the rat population in the respective districts, and by the frequent removal of refuse to discourage the presence of these vermin in the vicinity of dwellings. All experience points to the conclusion that if rats be kept outside the house the risk of plague infection is extremely remote, and the question of rendering the homes of the poor rat-proof by means of cement flooring may well be considered in future construction. Rigid cleanliness in the humbler quarters must be enforced, particularly in quarters where fleas and other dangerous insects are known to abound. The large landowners and their tenants in Suffolk will, no doubt, heartily coöperate with the local authorities in such schemes as they deem it best to adopt, but it is for the local authorities to organise matters and take the lead, and to galvanise into activity smaller holders of land who may not be playing their proper share in

the war towards rat extinction. Provisional arrangement should be made for isolation and observation, and persons intimately exposed to infection from rats, or possibly infection from human sources, should have an opportunity of obtaining such protection as plague prophylactics will afford them. If all these precautions be duly enforced no very great anxiety need be experienced by the human inhabitants of the invaded districts, although it must frankly be accepted that the position is fraught with some danger. A fact of good omen, upon which, however, too much stress must not be laid, is the difference between the rat flea in India and the rat flea in this country. The Indian parasite betakes itself not unwillingly to the human host, whereas the rat flea of this country has but a poor appreciation of the blood of man. There is certainly something in the behaviour of the malady in Suffolk which suggests some such explanation as this would afford.

Vaginitis in Hospitals.

OUR attention has been called, through a reference to THE LANCET therein, to an article published by a paper called *Mrs. Bull* on Oct. 29th, and headed "Great Ormond-street Children's Hospital," and having for its subtitle the following: "Shocking Disclosures — Little Children infected with Foul Disease—Lame Excuse of the Authorities." Where we come into this galley is the fact that a special commissioner was sent by the proprietor or the editor of *Mrs. Bull* to investigate certain complaints with regard to the treatment at the Children's Hospital of two small children at the beginning of this year, and a conversation having ensued between the commissioner and one of the hospital authorities, the medical man suggested that the matter was one for discussion in THE LANCET rather than in a lay paper. From our point of view, having carefully gone into the questions at issue, it seems doubtful whether there is any real need to say anything, but in accordance with our oft-expressed view that allegations against our medical charities ought to be discussed with even unnecessary freedom so that the public which supports them may judge of their conduct, we accept the reference to ourselves in the matter.

What actually occurred at Great Ormond-street Children's Hospital is as follows. In November, 1909, a case of vaginitis was admitted to the wards, and before it was recognised and isolated the infection had spread, and seven cases had to be dealt with. All these cases were isolated and treated in accordance with the usual and very strict routine—for, of course, the risk of this infection is extremely common—and all recovered. On Jan. 6th, 1910, a female child, A, aged 4 years (who entered the hospital, by the way, with a "dirty head"—that is, with pediculosis capitis), was operated upon for tuberculous glands, and three weeks later was sent to Cromwell House, Highgate, the convalescent home of the hospital, having then a clean head and no vaginitis. On March 17th she was received back at the hospital, and as she was found to have developed vaginitis she was isolated in the strictest manner until for three weeks she appeared to have been free from the malady. She was not sent home to be undressed by a surprised mother, as stated by the writer in *Mrs. Bull*. She re-entered the wards, but still with the special supervision accorded to possibly infectious cases, and finally went home on June 1st, having then apparently no vaginitis and a clean head. On June 28th she was re-admitted with a "dirty head" and a recurrence of her obstinate malady, was again strictly isolated, and at length the condition was cured. Concurrently with this case there was under treatment for pneumonia a little girl, B, aged 3 years. She was admitted to the hospital on Feb. 11th, and on Feb. 24th had sufficiently recovered to be sent to the convalescent home at Highgate. From there she went home on March 17th, but almost immediately was found to be suffering from vaginitis. She was re-admitted into the hospital, was isolated, and her condition, like that of the other child, yielded to treatment, though a relapse has followed. On these two cases, with perhaps a vague suggestion that the outbreak in November, 1909, was a serious one, an indictment against the hospital management has been framed by the editor of *Mrs. Bull*, which is not in the least warranted by the facts, and which could not have been made by anyone with medical knowledge.

We have no desire to minimise the importance attaching to the treatment of patients at our voluntary hospitals; we do not suggest for a moment, even, that it is not the business of lay papers to inquire into all complaints emanating from patients, particularly if those complaints have been disregarded by those responsible for the conduct of the hospital in question; and lastly, there is an urgency about an appeal made on behalf of little children which we recognise, for little children cannot help themselves. But there is another side to the matter. It is, to our mind, absolutely necessary that those who take upon themselves the responsibility of criticising the work of a great hospital should fit themselves for the task by acquiring the necessary knowledge. The extreme frequency of vaginitis among urban children of the lower orders is absolutely unknown to the lay public—how should it be otherwise?—and the author of the article in *Mrs. Bull* was not informed on this point. Every female child on becoming a candidate for admission to the Great Ormond-street Children's Hospital is rigorously examined because of this frequency, and because of the great infectiousness of the condition those with vaginitis are almost invariably rejected. But vaginitis has an incubation period, and no inconsiderable one; indeed, it may be as long as three weeks; so that the fact that a child is admitted apparently free from the condition does not clear the hospital from the risk of taking into the general wards a highly dangerous little patient. All this is perfectly well known to medical men and, of course, to the authorities of the Great Ormond-street Children's Hospital, who have an elaborate routine of observation and isolation to prevent the spread of this disease, when it is discovered, within the hospital walls. Into all hospitals and institutions cases of vaginitis associated with the gonococcus are occasionally introduced in the incubation stage, or with such completely slight symptoms that they escape observation, and whenever this happens a chance of the spread of the infection is very great. The wonder, indeed, is not that an occasional slight outbreak should occur, but that, especially in children's hospitals, the authorities should

be able to keep the infection under so well. Dr. EMMETT HOLT, the well-known professor of diseases of children at the College of Physicians and Surgeons of New York, in his admirable text-book on the "Diseases of Infancy and Childhood," discussing the exact situation we are now considering, points out that in institutions for the treatment of children's diseases the gonococcus vaginitis once introduced, unless the patient is quarantined, will spread until entire wards or dormitories are infected, and a local epidemic may be set up which will last for months. All this is common knowledge to medical men and hospital authorities; had it been known to the editor of *Mrs. Bull* an article which might have had an evil effect upon the working of an admirable charity would surely not have been written.

A word about the "dirty heads" of the two patients whose cases form the reason of these remarks. More than three-quarters of the little patients who enter the wards of the Great Ormond-street Children's Hospital have "dirty heads"—that is to say, they harbour pediculi capitis. A uniform treatment is adopted which is almost always successful. In the case of patient A she had a dirty head when admitted and a clean head when sent home. She remained at home from June 1st to June 28th, and when she was readmitted she had pediculi capitis, which the nurses at the hospital proceeded to deal with. In the case of patient B, stated by *Mrs. Bull* to have been sent home with a "dirty head," our contemporary appears to have been misinformed, for not only when the child was sent out on March 17th was her head clean, but it was still clean when she was readmitted on March 24th. We have seen the hospital records. Here again we are sure that the strictures would not have appeared if the facts had been in the possession of the writer in *Mrs. Bull*, who was probably unaware of the extent to which pediculosis capitis is present among the *clientèle* of a children's hospital. Having looked carefully into the charges brought against Great Ormond-street Children's Hospital by our contemporary, which amount to charges of ignorance, supineness, and callousness, we have come to the conclusion that none of the accusations would have been formulated by a writer who understood the pathology of the conditions in question, who realised the enormous difficulties which the authorities of all hospitals have to contend with in preventing the spread of these conditions, or who knew the solicitude and success with which the medical and nursing staffs of the assailed institution have combated their troublesome infectiousness.

Contract Practice in Germany and Government Intervention.

IN the annual Consular Report upon Berlin, made by Mr. H. J. BRUCE of the British Embassy in that city, the difficult position which arose recently in Germany out of the relations between the medical men attending sick clubs and managers of the clubs receives prominence under the heading of strikes and lock-outs. The fact that the Government intervened in the dispute, and the attitude of the Minister of the Interior towards the medical practitioners who sought to maintain the dignity of their profession and their right to settle their own business arrangements, are instructive in view of the prominence given recently by the report of the Royal Commission on the Poor-laws to proposals for future developments in the nature of State-recognised contract practice in Great Britain and Ireland. We do not anticipate that in this country the interference of a central or local authority would be attempted upon lines possible in Germany. In that country governmental and official intervention in matters of all degrees of importance, and in those which affect both individuals and classes of individuals, are a recognised feature in the social economy of the nation, so that more can be attempted without exciting remonstrance or rousing resistance than with us. The members of a scientific profession, however, occupy a position of some strength, because the demand for their services as healers renders them more independent of public support than those whose services can be dispensed with or replaced by the work of others. Consequently, in Germany, the medical profession, although its action in its essential features hardly amounted to a strike, was able by combination to take up a strong position and to secure recognition for its views. We may ask the question here, how far the spirit of subordination to discipline and to organisation, which the German people have acquired by long usage, may have aided the medical profession in presenting a firm and united front when at length it ranged itself in opposition to authority.

The Consular Report referred to states with regard to the origin of the dispute that "a local disagreement which had been proceeding at Cologne for some time between the management of the sick clubs and the medical men of the town was followed by a general resistance on the part of the medical men to the new Governmental regulations regarding the insurance of workmen. Contracts had been concluded in 1904 between the management of the Cologne sick clubs and the doctors which were valid up to Jan. 31st, 1909." Under these agreements the members were allowed to select their own medical attendants from those who had undertaken to treat the clubs at prices fixed by their contracts. The managers of the sick clubs professed to have discovered that in order to attract patients medical men prescribed unnecessarily large quantities of food, as well as of what we should term medical extras and medicines, with the result that the expenditure on these had risen from 37 marks per head in 1903 to 57 marks in 1909. Naturally, this growth in the cost of medical treatment, to whatever cause it may have been due, necessitated increased subscriptions, and to avoid these the club authorities refused to renew the old contracts, proposing for the future a return to their previous arrangement of employing medical men paid by salaries. This change of policy, indeed, they proceeded to put into force, with the result that after negotiations which proved ineffectual the German medical union at Cologne passed a resolution refusing to treat members of the Cologne sick clubs. Shortly after this the Minister of the Interior made a speech in the Reichstag, which, although it made no direct reference to Cologne, was clearly intended as an allusion to the situation there, and in which he said, "We are face to face here with a very serious state of affairs which shows to what the coalition principle, when exaggerated, can lead. To boycott a sick or dying man, and this is what it may come to, is a social reaction of

the worst kind, and I believe that a large number of German doctors are opposed to it. But they are impeded by the fetters of coalition and the pressure exercised by the medical courts of honour. These evils, like other evils resulting from coalition, must be suppressed." To this the medical union of Leipsic, with a membership of 95 per cent. of the German medical profession, made a firm and spirited reply, declining dictation as to their conduct, and maintaining their ground.

The position taken up by the German medical men with regard to the sick clubs was as follows. That all medical men should be permitted to attend members of sick clubs after entering upon agreements to that effect, which were to be drawn up by representatives of the medical profession and of the clubs. That committees should be established, consisting of medical men and representatives of the clubs in equal proportions, to which all disputes should be submitted. That committees or courts similarly composed should be established for purposes of conciliation and arbitration. That free medical treatment should only be granted in cases where the recipient's yearly income might be proved to be below a certain figure, fixed at 2000 marks. That there should be no legal interference with the rights of medical men to combine for their own protection. It will be seen that the attitude of the medical profession in Germany was entirely dignified and proper in the circumstances. It was taken up in order to resist the sweating of the medical profession by club practice at salaries avowedly adopted in order to effect economy at the expense of the medical men. All who engaged in the struggle, many of whom no doubt were not personally interested in it, deserve full sympathy from their professional brethren in this country. The cause of the original difficulty, the supposed tendency of medical men to bid against one another for practice by prescribing in a manner likely to please rather than to cure their patients, is interesting in view of proposals to allow the choice of medical men made by the majority of the Royal Commission on the Poor-laws. As a matter of comment it may be observed that any charge of such conduct as that alleged at Cologne could not possibly be dealt with properly by club managers only. In such cases a medical committee, not a joint one of medical men and laymen, would be the most efficient tribunal, and certainly would not be one likely to deal with undue leniency with a proved case of the serious nature referred to.

Annotations.

"Ne quid nimis."

THE FOUNDER OF THE RED CROSS.

THE death of that noble philanthropist and consummate organiser, M. Henri Dunant of Geneva, revives a controversy which had been regarded as closed—a controversy arising out of the questions, "Who was the real originator of the neutralisation of the army medical service and of the wounded in time of war?" Was it M. Henri Dunant, or was he simply the "elaborator" of a conception due to another? Professor Andrea Ceccherelli of Parma, while conceding all just praise to the Swiss author of the "Souvenir de Solferino," the memorable book that described for the world of 60 years ago the horrors of the battle-field and the sadly insufficient organisation for minimising the same, writes to the leading Roman journal: "As an Italian, who has no wish to detract from the merit of Enrico Dunant, I feel it my duty to recall (to my compatriots at least) that the 'Founder of the Red Cross' was the Senator, Professor Ferdinando Palasciano." A Palasciano prize, it seems, was instituted in commemoration of the services of its "hero and eponymus," and, as reporter of the conditions and circumstances of its bestowal, Professor Ceccherelli reminds the public that in 1885 the prize was conferred by the "Società Italiana di Chirurgia" (the Italian Society of Surgery) on Gaetano Mazzini for his documentary demonstration that the "conception and founding of the Red Cross" belongs to Ferdinando Palasciano, whose beneficent work dates from an incident in the late "forties" of last century, from the conflict, in fact, between the forces of King "Bomba" and the insurgent patriots of Sicily. The controversy appears to us about as idle as it is invidious, and has its analogue in many other controversies turning on the claim to priority of this or that innovator, inventor, or discoverer. As science progresses, and as "truth," in the words of the philosopher, "emerges from the illumination of many minds on many points," ideas and generalisations tend to become more and more "of the common stock," and their first realisation or conception, on the part of independent workers in the same field, to become more and more simultaneous. Witness the discovery of the planet Neptune—claimed, and with equal plausibility, for an English, a French, and a German astronomer. The discovery was, so to speak, in the air, and if it had not been made by any of these distinguished mathematicians it must have been made by another in the immediate future. The brotherhood, or in the Italian phrase, the "fratellanza," of science is too feelingly persuaded of what it owes to coöperation and to combined endeavour, to insist overmuch on the contribution of the individual, and claims to priority, inspired too often by personal *amour propre* or by racial vanity, seem ungraciously obtrusive when the innovation in question affects the common interests of mankind—interests in which the importance of the special originator might well, without effacing itself, retire into the second line.

PRIMARY ACIDOSIS.

IN another column we publish an interesting case of primary acidosis recorded by Dr. Sidney Bontor. For the symptoms which were noted we refer our readers to the original paper. As Dr. Bontor remarks, the diagnosis was difficult. It was evidently a toxæmia and appeared to rest between uræmia, an intestinal infection, and acidosis. The urine gave no definite reaction until 13 days from the onset of the illness, then diacetic acid was found to be present and the condition was shown to be one of acid intoxication. Among the circumstances in which marked acidosis arises are conditions which especially affect glycogenesis, such as removal of the pancreas, poisoning with carbonic acid, poisoning with phloridzin, exclusive feeding on animal fats, and, of course, severe cases of diabetes. In these conditions there is great deficiency of carbohydrates, and there is excessive transference of fat from the tissues to the liver, and the acidosis is excessive. None of these conditions appear to have prevailed, as Dr. Bontor said the patient was a small eater, and he suggests that her store of glycogen was always small; on the other hand, the small amount of food taken does not indicate an excessive indulgence in fat, and, indeed, he says that she was always pale and had a very small amount of adipose tissue. Nevertheless, his theory of the production of the acidosis is probably a sound one. There was a distinct history of chill, and Dr. Bontor believes that this so

interfered with the digestive processes that an intestinal toxæmia was induced, and subsequently the liver cells were so damaged by their work in dealing with the resulting toxins that they were incapable of performing their normal function of transforming the carbohydrates into glycogen. It is thus possible that the patient's store of glycogen became exhausted during the first few days of her illness. In spite of the severe symptoms produced, the patient recovered. Dr. Bontor states that it is probably the first recorded instance of recovery after a severe primary acid-intoxication.

THE FIRST SPANISH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

THIS Congress was held at Barcelona from Oct. 16th to 22nd of this year. Amongst the articles communicated to the Congress were the following: The Educational Rôle of the Anti-tuberculosis Dispensary, by Dr. S. Bernheim and Dr. Louis Dienpart. The authors commented on the great advantages that had accrued from the work of the dispensaries which had been established throughout France for the care of patients suffering from tuberculosis, and the education which had been given to the families of these patients as to the "methods for preventing the spread of the disease." Dr. S. Bernheim and Dr. P. Barbier communicated a paper on Zomotherapy in the Treatment of Tuberculous Conditions. They stated that in conditions such as tuberculosis, when the digestive functions were often feeble, it was necessary to give flesh food in the most concentrated and easily digestible form. All fibres must be removed from the meat and the juice alone should be employed. Several clinicians had stated that they had obtained the best results from the juice of horseflesh, which was rich in hæmoglobin, in proteids, and in glycogen. Dr. Bernheim and Dr. Henri Parmentier extolled the value of open-air schools; and Dr. Hervé read a paper on the necessity of treating delicate children by means of open air and carefully regulated discipline as to their daily life.

THE BLOOD PRESSURE IN AVIATORS.

THE wonderful triumphs of the new art of aviation have directed attention to the mechanics of the aeroplane, but the equally new problem of the physiological effects upon the aviator seems to have attracted little notice. The rapid ascent to great altitudes exposes the body to conditions different from any terrestrial ones. Mountain climbing offers some analogy, but it differs in the fact that the transition from the high atmospheric pressure of the sea-level to a low pressure takes place much more slowly. In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of Sept. 25th Professor R. Moulinier has reported some interesting observations on the blood pressure of aviators who have ascended to high altitudes. On alighting after ascending to a height of 1200 to 2000 metres the aviator presents cyanosis of the extremities, probably from the low temperature of the high regions of the atmosphere. Often there is congestion of the conjunctivæ. The pulse is slightly accelerated, but there is no palpitation, arrhythmia, or epistaxis. There is often slight and transient headache and tinnitus aurium. Sometimes there is a tendency to sleep, and this may be felt even during flight. After the flight the blood pressure is always increased. In one aviator at 5.30 P.M., before flight, the constant blood pressure in the radial artery was found with Pachon's sphygmometer to be 9 centimetres of mercury and the maximum pressure to be 18 centimetres; the pulse was 70. At 6 P.M., after a flight of 25 minutes, during which at the twentieth minute he reached the height of 1100 metres, the constant pressure was 12 centimetres of mercury and the maximum pressure 19 centimetres; the pulse was 80. This increase in pressure is all the more remarkable as the aviators were athletes in full training. The rise was less marked in aviators who were fatigued. These showed palpitation of the heart and marked acceleration of the pulse (108). In one case troublesome tachycardia, symptomatic of functional insufficiency of the heart, and vertiginous movements, were observed in an aviator who, after a flight of an hour, had reached the height of 1000 metres. No rise in blood pressure was found in aviators who flew at low altitudes, such as 100 to 150 metres. As to the cause of the rise in blood pressure, Professor Moulinier puts forward the hypothesis that it is due to the sudden descent to earth in four or five minutes from a height of 1000 to 2000 metres which was attained in 20 to 25 minutes. At a height of 2000 metres the atmospheric pressure is 591 millimetres of mercury, at the sea level 760 millimetres. In the short time of the descent the circulatory system had not time to become adapted to the change of pressure. He therefore advises aviators to descend more slowly. He also points out the dangerous fatigue to which flight at high altitudes exposes the circulatory apparatus by provoking increased and irregular activity of the heart and vessels. A sound heart and supple arteries are absolutely necessary to an aviator. The list of distressing fatalities to aviators has become comparatively long in a very short time. The accidents are always attributed to some mechanical cause—some breakdown in the machine or unexpected current of air. No doubt this is usually true, but it seems to us quite possible that in some cases the breakdown may have been in the human machine, which is exposed to a new and peculiar stress, both physical and psychical. It is curious that this point does not seem to have received attention.

"ITALIA INFELIX."

ITALY has need of all the consolation she can derive from her gift, her "fatal gift," of beauty. Scarcely does she begin to recover from one visitation when she seems well-nigh crushed under yet another, which imposes fresh demands on her reserve of recuperative power till this, marvellous as it is, shrinks to within vanishing point. In the spring of the present year the whole Brianza region was devastated by a cyclone of transatlantic origin and in the same season the Irpinia—the Samnium of antiquity—was convulsed from centre to circumference by one of the earthquakes apparently periodic in the southern part of the peninsula. The summer brought an invasion of cholera, which, besides inflicting loss of life and paralysis of industry, agricultural and mercantile, has bequeathed a "scare" to the season which looks wistfully for the "paying guest"; and now, when the country is endeavouring by much outlay of official energy and administrative largess to keep the malady at bay—if not, indeed, to drive it from her shores—she is again the victim of atmospheric disturbances, exploding in "nubifragi" (or cloud-bursts) which have swept the Ischian island of its hotels, its houses, and its inhabitants, and flooded the Neapolitan Riviera with water in such volume and with such violence as to bury farmsteads under débris and to submerge whole tenements with their inmates in its seaward course. It is but cold comfort to the regions so disastrously visited that the work of salvage and relief, strenuously carried out by the King and his ministers, reinforcing communal and municipal intervention, is minimising the damage done and the misery left behind. More than merely "remedial measures," however well-inspired or effectively administered, are required to exorcise that feeling of

insecurity, that vague sense of impending calamity, which has now become an *idée fixe* in the superstitious south, hardening into hopelessness and stimulating that migratory spirit which is robbing it yearly of its manhood by overseas colonisation. Well did Pasquale Villari, man of letters, philanthropist, and statesman, appeal to his compatriots through the leading journals the other day to concentrate their best thought, energy, and resource on the rehabilitation of the Two Sicilies, if these are not to weigh on them like an incubus, impeding national development, perverting growth intellectual and moral, and sullying the credit of the Italian name. When a whole urban quarter or an entire countryside in the cholera-visited south rises in revolt against the officers, medical and sanitary, who are risking their lives to cure the suffering and to protect the temporarily immune; when the police and the military have to intervene to save the devoted practitioner from being stoned to death in the discharge of his duty, surely this implies a superstition, a benighted obsession, only to be explained by the lack of education which still keeps some 70 per cent. of the proletariat "analfabeti"! Confronted by a social stratum so little removed from the savage, how vain it is to expect confidence in the measures taken to adapt house construction (for example) to the unstable soil, to second the crusade against endemic disease like pellagra or malaria, to work in sympathetic concert with the initiative of Government for the rehabilitation of the soil, for the work of re-afforesting, for the "bonifiche," as they are called, which would remunerate the husbandman's labour as certainly as sanitation would improve his health or as well-chosen building-sites would make his tenement secure. The charity which begins at home must in Italy find expression in an "instauratio à fundamentis," or rehabilitation of the submerged masses, so as to evolve an intelligent, industrious, and contented citizenship, as the primary condition of social and national health. Not till then can she emerge from her present attitude of waiting upon Providence or anticipating aid from without—aid too often deflected from its purpose or its object by malversation on the part of distributors who have come to look on a visitation like the last as a "local asset" to be utilised in any way except in that of relieving the sufferer.

VINCENT'S ANGINA.

WE have on previous occasions referred to the peculiar form of sore-throat which is called after the French writer Vincent, who first described it in 1898, and have suggested that it is seldom recognised in this country, though it must frequently come under observation and be mistaken for diphtheria. These facts are shown in a paper published in the *British Journal of Children's Diseases* by Dr. J. D. Rolleston and based on 32 cases observed in the Grove Hospital. During the years 1905–09 3266 cases of diphtheria were admitted into the hospital and 610 cases were sent in under the certificate of diphtheria, but other diseases were found. In these were 30 cases of Vincent's angina. Its frequency was 0·9 per cent. of all cases of sore-throat and 4·9 per cent. in non-diphtheritic angina. Vincent found that it occurred in 2·2 per cent. of all cases of angina, but his patients were confined to soldiers between the ages of 20 and 25 years. At the Grove Hospital 14 cases occurred in the first quinquennium, 13 in the second, four in the third, and one in the fourth. Vincent's angina may be defined as a faucial lesion, usually unilateral, characterised by deep ulceration of the tonsil and adjacent structures, a peculiar fœtor, enlargement of the corresponding lymphatic glands, and associated with the symbiosis of the two organisms, a fusiform bacillus and a spirillum. It is customary to distinguish two forms, an ulcerative and a membranous or diphtheroid, but in Dr. Rolleston's experience the ulcerative is only a later stage of the diphtheroid. The slough which covers the ulcer may so closely simulate diphtheritic membrane that even after considerable experience diphtheria may be diagnosed, especially as the characteristic fœtor is often absent in the early stage. Thus 10 cases were diagnosed as diphtheria on admission, and antitoxin was injected, but no diphtheria bacilli were subsequently found. Nasal discharge, which is so frequently an initial sign of diphtheria, occurred in 14 cases. The resemblance to severe diphtheria was increased in five cases by the occurrence of faucial œdema. Adenitis, usually confined to one side, was sometimes considerable, but there was never anything resembling the "proconsular" neck of toxic diphtheria. In every case the inflammation resolved. Suppurative adenitis, as Vincent has pointed out, is unknown. The fœtor of Vincent's angina, though characteristic and quite different from that of malignant diphtheria, may mislead those who have had no experience of the former disease. Disproportion between the severity of the local and general symptoms is one of the most striking characters of Vincent's angina. In most of the cases the constitutional disturbances were slight and lasted only during the pyrexial period, which usually was brief. In 5 cases the temperature was normal throughout; in 10 it ranged between 99° and 100° F., and in only 4 did it rise above 102°, the highest reading being 103·8°. Compared with diphtheria, Vincent's angina is protracted. In diphtheria the throat becomes clean a few days after the injection of antitoxin; in Vincent's angina healing usually takes much longer. In the 32 cases the average period was 18 days. As to treatment, in most cases it is sufficient to swab the affected part night and morning with tincture of iodine, as recommended by Vincent. If the fœtor is very penetrating the throat may be syringed with a solution of chlorate of potassium and myrrh. In one case in which the ulceration advanced in spite of these measures the application of powdered methylene blue to the ulcers on two successive days was followed by rapid healing.

PRINCES TO THE RESCUE.

Prince Francis of Teck, it is well known, had intended to devote his time and energy to building up an adequate annual subscription and donation list for the Middlesex Hospital. Had he lived undoubtedly his efforts would have been crowned with success if we may judge by the rapidity with which he secured the sum of £20,000 to pay off a three years' deficiency in the running of the charity. His death has caused a loss which it will be hard to replace, and his name will always be associated with the Middlesex Hospital, not only as a most popular chairman of the weekly board, but as one who cared for the whole welfare of the institution Fitting is it, therefore, that the memory of him should be preserved by putting into operation those plans in aid of the Middlesex Hospital which he had so much at heart. In order to carry out this intention the Duke of Teck has consented to become a vice-president of the hospital, and Prince Alexander of Teck has been willing to succeed his brother as chairman of the weekly board. In a letter which he has written to the press, Prince Alexander expresses public feeling when he says that no more appropriate tribute could be paid to the memory of Prince Francis than the establishment of an endowment fund which would produce £7000 a year, the amount by which the normal expenditure exceeds the annual income Their Majesties the King and Queen have

already signified their approval of the scheme by sending handsome subscriptions to the fund, and their example will doubtless be followed in spirit and deed by numerous donors.

OPTICIANS AND SPECTACLES FOR LONDON CHILDREN.

AT the request of a deputation from the Worshipful Company of Spectacle Makers and the British Optical Association the Education Committee of the London County Council has considered the wording of a paragraph in the recently issued "Health Hints to Parents," in which parents were advised that spectacles should be worn only when prescribed by a medical man, and should never be obtained from an optician or "eyesight specialist" unless so prescribed. A subcommittee stated that it was convinced it was not possible, without grave risk of error, to test the vision of school children without the administration of a drug which opticians, by the terms of their diploma, were forbidden to use. The Council, therefore, should advise parents to consult a doctor in respect of defect of vision in their children. At the same time the pamphlet should be so modified as to remove any suggestion which might be taken as a reflection upon opticians. The paragraph as amended reads: "The children may require spectacles, but these should be worn only when prescribed by a doctor. The children's eyes should never be tested by opticians or eyesight specialists, as these do not use the necessary drugs."

ELECTRIC CURRENTS AND MICRO-ORGANISMS.

IT is some years now since the St. George's Hospital Reports were published, the last complete volume having appeared in 1879. These were essentially clinical in character, and it has not been found feasible or advisable to revive the reports in their original form. But the Reports have been revived in somewhat different guise, the new issue consisting of accounts of the work now being carried on in the clinical and research laboratories of the hospital. The volume is under the editorship of Dr. Charles Slater, director of these laboratories, and some of the articles therein have already been published in THE LANCET and elsewhere. The one article from Dr. Slater's pen has, we believe, not appeared before. It gives the results of experiments which he made to ascertain the effect of disruptive discharges and high-tension and high-frequency electrical currents on micro-organisms. In making the numerous experiments that have been necessary, the aim has been entirely to eliminate the indirect effects of the currents employed, such as electrolytic action, heating, effects of light, and other similar agents, so that the direct influence of the current would be the only factor of any significance. The various bacteria were cultivated in U-shaped tubes to facilitate the application of electricity; other experiments were made with cultures introduced into raw beef, so as more nearly to simulate the conditions of ordinary electrical treatment. Many other modifications were carried out on dead media, and at the end of the report we have the experiments made on guinea-pigs. In all cases the results were negative. While perhaps unsatisfactory in one sense, the ultimate finding is of great importance, as it meets the uncertainty that exists in the minds of many who are more or less interested in electrical treatment. It proves conclusively that any deleterious effects on bacteria that have followed an electrical application are due to the by-products and not to the thing itself. If we imagine a number of individuals bathing in a large pond or tank to which electrodes are fitted, one at each end, and a strong current passed through (yet not so strong as to heat the water uncomfortably) it is inconceivable that any one of the individuals would intercept enough of the total current to do any harm or to feel other than a mild and possibly pleasant stimulation. This, we think, very nearly represents the experiments at St. George's Hospital as applied to human beings, and we see how our efforts to ascertain the effects of electricity, *per se*, are limited to small doses, or more correctly, low current densities. At the same time the results obtained by Dr. Slater are very significant, and we are glad to have an authoritative pronouncement on the subject, based upon careful work. The form of high-frequency application known as diathermy opens up a new phase of electrical treatment, and on account of the high current density available without electrolytic disturbance similar experiments might be carried out with it. But here, again, the current density will be limited by the heating effect, as was shown by Dr. Nagelschmidt at the Royal Society of Medicine on Oct. 21st last, when he showed how egg albumin was coagulated in a few seconds.

THE RELATION OF THE ACID-FAST TUBERCLE BACILLUS TO OTHER FORMS OF BACTERIAL LIFE.

AT the Ninth International Conference on Tuberculosis, recently held at Munich, Dr. Stephen J. Maher (Connecticut, U.S.A.) read a paper on the above subject. He first pointed out that the young growth of tubercle bacilli, human, bovine, or avian, on glycerine-broth, glycerine-agar, or glycerine-broth-potato, are consistently acid-fast and stain entire, and are of a uniform size. As the bacillary scum on the surface of the glycerine-broth in air-tight flasks grows old and heavy, and perhaps a shade darker, smears will disclose the fact that many individual bacilli have become abnormally long and have taken on a filamentous appearance. Later, perhaps at the end of six months, some bacilli will disclose a beaded or granular content, and some will have lost, in part or entirely, their resistance to the acid. With the ordinary Ziehl-Neelsen staining many bacilli will appear blue or unstained. But these changes in the bacilli composing the scum will be slight as compared with those undergone by the bacilli that from time to time have fallen or have been shaken to the bottom of the flask. No change will be noticed in the gross appearance of these heaps, but the microscope will promptly show that they contain a large proportion of bacilli that have lost their acid resistance. Dr. Maher then described in detail his experiments on tubercle bacilli which have been cultivated for long periods on glycerine-potato. He states that the several bacterial forms that he has derived from old cultures of tubercle bacilli do not digest milk or change its reaction to litmus, and that most of them preserve some of the acid-fast property of the tubercle bacillus, but at the same time he claims that culturable bacterial forms other than tubercle bacilli can grow from cultures of old tubercle bacilli. From the researches he has carried out he has formed certain "tentative deductions" which he expresses in the form of questions as follows: 1. Is not the acid-fast tubercle bacillus simply a most highly specialised acid-fast bacillus that has acquired the faculty of resisting the lytic power of the animal cell? And, like all other acid-fast bacilli, was it not derived originally from a non-acid-fast bacillus? 2. Does not the hope for the infected animal lie not in killing the invader outright but in depriving him of his acid-fast armour and weapons? 3. Does not the great sensitiveness of the tubercle bacillus to change of environment *in vitro* afford a key to the solution of nature's cures of tuberculous animals? 4. When the infected animal is cured by change and fresh air is it not because in the new environment the tubercle bacillus has difficulty in perfecting its acid-fast development and therefore grows non-acid-fast or poorly acid-fast, or breaks up into cocci, which may or may not win the next battle with the

cells? ..... 5. Is not all the literature concerning the organisms of the secondary invasion or of mixed infection in tuberculous areas a huge blunder because of its failure to recognise the fact that the so-called secondary invaders are practically always derivatives of the struggling acid-fast tubercle bacillus? Dr. Maher hopes that these points will receive attention at the next meeting of the Conference, and it would be desirable that the organising body should take his suggestion seriously into consideration. Some of the questions raised will probably be answered in the affirmative; others, especially the one in which he refers to mixed infections, will give rise to much discussion, for the results obtained by other observers directly contradict the deductions at which he has apparently arrived.

MEDICAL INSPECTION AND AFTER.

Messrs. Cornish Brothers (Birmingham) have just published an interesting pamphlet by Miss M. C. Matheson, warden of the Birmingham Woman's Settlement, on medical inspection and the ways and methods adopted by various localities in following it up. Miss Matheson deals chiefly with Birmingham's experience, but her conclusions have a general interest. The work of investigation into the matter in Birmingham was undertaken by a small committee consisting of members of the Birmingham Charity Organisation Society and the Woman's Settlement. The committee is impressed with "the absolute necessity of some system of following up the medical inspection," and suggests that the Charity Organisation Society should either establish a network of subcommittees or that the education committee of the town should organise the subcommittees as school managers. The committee further reports that the facilities for treatment of general, ear, throat, eye, and skin cases are inadequate and proposes the appointment of a school oculist. It is interesting to note the continual pressure of facts forcing all sections of opinion toward the provision of some special treatment for school children after medical inspection. There seems very little doubt that the existing machinery of medical treatment will prove insufficient for the new demands in almost all localities and will have to be supplemented by what will be in fact, under whatever name, school clinics. The Birmingham suggestions, even were it possible they could be adopted, would involve the employment of a small army of voluntary officials "who, while throwing themselves into their duties with zeal and enthusiasm, will also submit themselves to the discipline of study, system, and coöperation." London's experience, at any rate, goes to show that such an army will be impossible to recruit. The London Care Committees have apparently broken down. Excellent as Miss Matheson's pamphlet is, and useful as are some of the suggestions, it is impossible to read it without being convinced of the magnitude of the administrative problem medical inspection opens up, and convinced, too, that we are by no means on the road to its solution. If the problem of Birmingham be difficult, how much more so that of London and the great industrial regions of Lancashire and Yorkshire. London has great difficulty in any attempt to solve the treatment problem and even, as the recent sharp letter of the Board of Education shows (see p. 1364), in facing the mere inspection problem. The hospital treatment system in London may be said to have largely failed, it is cumbrous in practice and ineffective in action, while the attempt of the London County Council to concentrate its inspectors on the districts served by hospitals with whom arrangements for treatment had been made was one of the facts that led to the "selection of schools" to which the Board of Education objects. Even routine inspection is difficult in London, adequate treatment will be no easier, the teachers object to the hospital plan because of its inefficiency, and voluntary workers are only spasmodically available. The way out is not clear, and it seems unfortunate that in such circumstances the Board of Education should insist so rigidly on the carrying out of its routine arrangements for inspection of the special age groups to the detriment of freedom of experiment. The Board is no doubt right in insisting on an increase in the number of members of the inspecting staff, but this is a change that was automatically taking place under the London County Council scheme. But the Board of Education insists on stereotyping its scheme before it has been adequately tested by experience. The goodwill of the London County Council in the matter is shown by the arrangements it had made for medical treatment by the hospitals, insufficient as these arrangements are now shown to be, and by the carefully formulated plan for gradually increasing the medical staff. The matter in a nutshell is that the London County Council has been told to cease its attempt to build up a medical inspection scheme gradually and to adopt the plan of the Board of Education. It is much to be hoped that under all the difficulties it has to face the London County Council will boldly tackle the question of treatment, without which the mere inspection will be of only secondary importance.

THE STATE FEEDING OF SCHOOL CHILDREN.

THE question of the feeding of school children excited much controversy during the passage of the Education (Provision of Meals) Act, 1906, and many were opposed to placing the feeding of children on the rates, being firmly convinced that the step was one which would never be revoked and one which would be disastrous to the best interests of the community. The success of many a measure may be judged from the diminishing necessity for its continuance, and in this connexion evidence from Brighton is interesting. The education authority there was one of the first to apply for sanction to spend money out of the rates to feed ill-nourished children, and so satisfactory has been the system of feeding that according to the canteen committee, "it is practically impossible for any child to be attending school physically unfit, through lack of food, to take advantage of the education provided." Experience has shown that one canteen has been sufficient to meet the requirements of the committee, whose work for the summer period April 20th to July 27th is as follows, the figures in parentheses referring to the summer period of 1909:—

Approximate number of nominations received	400
Total number of individual children who received free meals	321 (357)
Percentage of number of children who received free meals to number of children on rolls of public elementary schools	1·7 (1·9)
Highest number granted free meals during any one week	253 (289)
Lowest number granted free meals during any one week	220 (250)
Total number of free meals granted	14,288 (14,259)

The figures show a decrease in every particular save in the total number of meals, and this is accounted for by the fact that owing to the very cold spring the summer canteen opened a fortnight earlier than in the preceding year. When the canteens were first opened in 1908 the highest number of children fed during any one week in the summer was 320; the following year this figure dropped to 289, and now to 253. Another satisfactory feature is the growing endeavour on the part of parents to do something towards paying for the meals which their children receive, for 349 meals were supplied during the period under notice to children who brought a penny to lessen the cost. This figure is an increase of 185 over that for 1909. Every care is taken to guard against imposition, and special note is made of children who

are recommended for free meals by the school medical officer and whose home circumstances do not justify the meals being given free. The names of such children are entered on what is called a watching list. There are at Brighton no fewer than 18,000 children on the rolls, and the report of the canteen committee is very gratifying and its work deserving of the highest praise.

CORONERSHIPS FOR THE CENTRAL DISTRICTS OF LONDON AND MIDDLESEX.

THE death of Dr. G. Danford Thomas led to vacancies in the coronerships of the central districts of London and Middlesex, both of which appointments he held. At its meeting on Oct. 27th the Middlesex County Council had under consideration the appointment of a coroner for the Central District of Middlesex. The district comprises Finchley, Friern Barnet, Hendon, Hornsey, and part of South Mimms. The office was filled by the election of Mr. George Cohen, M.B., C.M. Edin., barrister-at-law. The appointment for the Central Metropolitan District was in the hands of the London County Council, who at its meeting on Nov. 1st received the report of the Public Control Committee of the Council. This committee, guided by the recommendation of the Departmental Committee on Coroners, submitted to the Council the names of three candidates, two of whom held medical and legal qualifications. The third candidate, Mr. Walter Schröder, who was without either of these qualifications, had had a very large experience of coroner's work. The Council did not consider itself bound by the Departmental Committee's recommendation and appointed Mr. Walter Schröder, who received a large majority of the votes. He was congratulated by the chairman and took the oath of office.

THE PATHOGENY AND TREATMENT OF MIGRAINE.

IN the *Revue Neurologique* of Sept. 15th will be found a suggestive article by Dr. Parhon of Bucharest on the vexed question of the pathogeny of migraine and on its treatment. The causal connexion of *some* of the migraines with defective function of one or other of the internal secretory glands is more than a mere hypothesis. Hertoghe was one of the first to demonstrate a relation between periodic headache and chronic benign hypothyroidism. Many sufferers from migraine show symptoms of defective thyroid function. Richard has published an instructive case in which periodic attacks of migraine followed the successful removal of a voluminous goitre. It is a curious fact, according to Bouchard, that in 1000 cases of migraine urticaria was noted 48 times, while in a series of 1000 cases of other diseases it was only noted once. The writer quotes a similar relation in his own experience and emphasises the value of thyroid treatment in urticaria, hence the possibility of the thyroid origin of some migraines is again suggested. Further, uterine affections, dysmenorrhœa, paludism, asthma, hæmorrhoids, glycosuria—to name but a few—are conditions not infrequently associated with migraine, and many observers have recorded cases of these where the function of the thyroid gland was impaired. The treatment of migraine (*pace* Dr. Parhon, it is preferable to say "some migraines") by thyroid opotherapy has been eminently successful. It is well recognised that during pregnancy periodic attacks of migraine may diminish or cease, and it appears justifiable to associate the fact with physiological hypertrophy of the thyroid. On the other hand, Dr. Parhon relates the case of a patient with migraine, whose headaches disappeared when symptoms of the development of Graves's disease manifested themselves. He also narrates in detail two cases of migraine successfully treated by the exhibition of thyroid substance. The second of these is noteworthy for the definite amelioration of severe symptoms. It is difficult to say exactly what the nature of the thyroid impairment may be. Probably it is a matter rather of hypo- than of hyper-thyroidism. The mechanism of the production of migraine through thyroid insufficiency is equally uncertain. Dr. Parhon is inclined to believe that, on the analogy of urticaria, the migraine depends on defective calcium metabolism. The frequent disappearance of migraine after the menopause is coincident with the restoration of thyroid equilibrium as a result of the cessation of the disturbing phenomena of the catamenia, pregnancy, and lactation.

THE AUTUMNAL TINT.

THE process of nutrition arrested in the world of foliage is probably responsible for the beautiful and varied colours which delight the eye in the autumn. Physiology and chemistry are concerned in the development of the leaf; they are concerned also in its demise, and they conspire to make the end æsthetic. The loss of vitality is sad, but it affords some consolation that chemistry finds an artistic conclusion in the production of a glorious series of yellow, red, and browns. Chlorophyll gently metamorphoses into erythrophyll or chrysophyll by a mysterious molecular re-arrangement dependent upon the supplies of energy being cut off. It is possible that the withdrawal of the vital supplies is a process of conservation. The tree stops expending its energy and stores it up for future contingencies, that it may tide itself over the winter or keep locked up an energy which is reserved to send forth buds again in the succeeding spring. Carefully conducted analysis has shown that while with many species the amount of nitrogenous material remains permanent in the summer, the quantity steadily diminishes as the season of autumn approaches, in which case the leaves grow red, while with other species when the chlorophyll fails the amount of nitrogenous material may be much the same in autumn as in summer, in which case the leaves go brown. To the former category belong the wild cherry, rowan, birch, and elder, and sometimes the oak and beech; and to the latter the sycamore, hazel, elm, and alder. In an interesting note in the *Chemical News* (Oct. 28th) upon the subject Dr. P. Q. Keegan regards the physiological causes of these differences as being due to the vegetation in the one set of cases terminating earlier than in other cases, and hence the organic principles already formed and apt for chemical transformations remain permanent, having, so to speak, nothing more to do and tend to accumulate relatively to the other constituents. In the declining vitality of the foliar organ incident to the approach of autumn the energy necessary to the sustenance of albuminoid activity is, Dr. Keegan considers, not forthcoming. On the other hand, in those trees where the vegetation is exhausted the albuminoids remain stored up as a sort of reserve with no stimulus to transform or de-assimilate into chromogen. The study is a most interesting one, and clearly bears analogies to colour phenomena in the human subject.

THE King has graciously consented to become Patron of the West London Hospital, Hammersmith-road, W., in succession to his late father, King Edward VII. The late Duchess of Teck always took a warm interest in this institution, where there is a ward (the Mary Adelaide) bearing her name. His Majesty has also graciously consented to become Patron of Epsom College, in succession to his late father, King Edward VII.

THE Drapers' Company has offered to erect a physiological

laboratory at Cambridge at a cost not exceeding £22,000, the plans to be approved by the Company, and the site and maintenance to be provided by the University. More judicious and timely generosity it would be hard to find.

THE next session of the General Council of Medical Education and Registration will begin on Tuesday, Nov. 22nd, when Sir Donald MacAlister, the President, will take the chair at 2 P.M.

THE annual dinner of the Royal Society of Medicine will be held under the presidency of Sir Henry Morris, President of the society, on Tuesday, Nov. 29th, at the Freemasons' Tavern, Great Queen-street.

THE Master and Wardens of the Society of Apothecaries of London have issued invitations to dinner at their hall to meet the Lord Mayor and Sheriffs, on Tuesday, Nov. 22nd.

THE MOTOR EXHIBITION AT OLYMPIA, LONDON.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

THE ninth International Motor Exhibition organised by the Society of Motor Manufacturers and Traders, opens its doors at Olympia to-day (Friday, Nov. 4th). As I have done on former occasions, I visited the scene of glittering brass and electric lights on the previous day, when there was less bewilderment, and I was able to try to find the cream among the rich milk that the show certainly provides for those in search of a motor-car. As the general public were not present, I was able without any discomfort to inspect pretty well every stand, and in the following very brief report mention is made of certain stands that ought to be inspected by all considering the purchase of a car. The space at my disposal does not allow of mention of many exhibits that I should like to write about, but so far as I could I noted in my wandering inspection everything most likely to appeal to a medical man.

The Adams Manufacturing Co., Limited, of Bedford, who introduced their single cylinder 10 h.p. car some five years ago, are on Stand No. 40, where the popular one-lunger is shown as a chassis and with a torpedo type body. They also show a 16 h.p. four-cylinder 85 mm. by 120 mm. This can be supplied with the Adams' planetary gear, or a sliding type gearbox can be fitted. With the former there is a smooth passage from one speed to the next without the possibility of a failure, and it is operated by a pedal or hand lever working in a gate. Many little refinements are included with this model—a self-starter, operated from the driving seat, front wheel brakes, a compressed air tank for inflating tyres or blowing horn or whistle, and abundant locker room.

The Alldays and Onions Engineering Co., Limited, of Birmingham, who are at Stand 59, inform me that their past season cars have proved so satisfactory that no radical alterations have been found necessary in their new models. They are specialising chiefly in a four-cylinder 14–18 h.p. model. The valves and tappets are enclosed by easily detachable covers, lubrication is by the mechanical force feed system, and the magneto is fitted at the forward end of the engine. Bevel pinions have now been substituted in the differential for the spur wheels formerly employed, and these cars are certainly worthy of consideration.

The Anglo-American Motor Car Company, Limited, of Heddon-street, Regent-street, London, exhibit on Stand No. 86 one of the latest American importations—the Overland Car. The 15–20 h.p. has a pressed steel frame and live axle drive, cooling by thermo-syphon, Bosch ignition, and Dunlop tyres. As the price (£220) for a two-seater will undoubtedly appeal to medical motorists I trust shortly to be able to give an account of a road trial on this car.

Messrs. Argylls, Limited, of Alexandria, near Glasgow, whose cars have always been favourites with medical men, are on Stand No. 34, and their new 12 h.p. model is sure to maintain their reputation. The engine is a four-cylinder, cast *en bloc*, bore 72 mm., stroke 120 mm., valves of large diameter, all on one side, and enclosed by an easily detached cover. Ignition is by high tension Bosch, driven by a cross shaft. All oil ducts are cast as part of the base chamber, and the lubrication is by a gear pump. A tell-tale of special design on the dash enables the driver to either see or feel that the oil is being circulated, the latter possibility being extremely useful for night work. The carburetter is a Zenith. Cooling is by thermo-syphon, with fan and honeycomb radiator. The whole suspension system is fitted with grease injectors, thus making lubrication certain. Two independent internal expansion brakes, operated by a hand lever, act on the back hubs, while the foot pedal brakes act on the front hubs. The clutch is of the multiple disc type running in oil. A range of four forward speeds and a reverse is provided, and all the gears are controlled by one lever working in a gate quadrant. The propeller shaft has two universal joints and is encased in a steel torque tube, the front end of which is fitted with a large spherical joint, which takes the torque thrust and at the same time forms a cover for the universal joint. The final drive is by a worm, and the floating shaft is fitted throughout with ball bearings. This chassis is well adapted for either a two-seater, double phaeton, torpedo, or coupé landaulette body.

Stand No. 70, where the New Arrol Johnston Co. of Paisley show their 15·9 h.p. car, should on no account be passed. These cars have forced feed lubrication to all the engine bearings, power unit and transmission gear *en bloc*, thermo-syphon cooling, metal-to-metal clutch, and valve tappet gear accessible but enclosed in a dustproof casing.

The Austin Motor Company of Northfield, near Birmingham, are on Stand No. 65. Their 15 h.p. town carriage has the driver's seat placed centrally and has the engine beneath, thus permitting a short wheel base, which is an advantage for town work.

A fleet of cars by the Belsize Motors Company, of Clayton, Manchester, on Stand No. 83, especially the 14–16 h.p. car, should be looked at, for I understand that several medical men have had good service out of this make, and the price is reasonable. The cylinders are 90 mm. by 120 mm. and cast in pairs, the clutch is metal-to-metal, the carburetter is a White and Poppe, and the ignition is by Bosch magneto. Riley detachable wheels can be supplied.

On Stand No. 19 Messrs. Bentall and Co., of Heybridge, Maldon, Essex, show five examples of their 16–20 h.p. four-cylinder autocars. The chief points of this "all-British" car are single unit gearbox, propeller shaft, and back axle. All four brakes act on the road wheels direct, are compensating, and actuated by independent mechanism. The clutch is fibre-to-metal and runs in oil, and the gearbox has three-point suspension.

Messrs. Brown Brothers, Limited, of Great Eastern-street, London, show on Stand No. 48 a 20–22 four-cylinder, with a torpedo body, a 20 h.p. landaulette, and a four-cylinder 10–12 h.p., this latter both as a four and a two-seater. These 10–12 h.p. cars seem eminently suitable for professional use, and I trust at an early date to describe them fully. Messrs. Brown Brothers have also on Stand No. 212 a most useful set of accessories. The new Gabriel horn, which has a four-note chord of exceptional carrying power, is especially useful for cars with a strong exhaust. The Roper safety control is an ingenious contrivance for enabling the occupant of a car to fix the highest speed at which the car shall be driven. Various autoclipse lamps, which have recently been improved though the price has been reduced, jacks, motor stethoscopes, tyre covers, brake linings, and other odds and ends that are so dear to the heart of the enthusiastic motorist are also shown.

Cadillac motors shown by Messrs. F. S. Bennett, of Shaftesbury-avenue, London, have always been favourite American productions, and their stand, No. 99, is sure to be thronged, especially as a chassis, stripped to show the working of the mechanism and electrically driven, is on view.

The Clement Motor Company, Limited, of Leicester-square, London, through indifferent luck at the ballot, were unable to secure a really satisfactory stand in the main hall, and thus have taken up their position at Stand No. 136 in the annexe, where will be found four finished cars and a polished chassis. Their cars differ very little from the 1910 type, with the exception of the 14–16 h.p., where the stroke of the engine has been increased from 102 mm. to 120 mm. Ball bearings are employed throughout the transmission gear. High tension Bosch magneto only is fitted, and in lieu of a supplementary

ignition they advise those who desire a stand-by in this matter to carry a ready-timed spare magneto. The upholstery and inside fittings of these cars are worthy of special attention.

The Continental Tyre and Rubber Co., Limited, of Clerkenwell-road, London, E.C., are at Stand No. 308, where their square tread, three ribbed, and red-black and chrome leather non-skid tyres are shown. The leather type of non-skid is recommended for town work, and the red-black for country.

The Cowey Engineering Co., Limited, of Kew Gardens, S.W., show on Stand No. 146 their patent Cowey suspension, which was described in THE LANCET of June 4th, 1910, p. 1566. The car shown has been especially made for and built with this pneumatic suspension.

The Daimler Co. of London are on Stand No. 54, where they have four cars fitted with the Silent Knight engine. The 12 h.p. is a new production and has a four-cylinder engine 69 mm. by 114 mm., with a worm final drive. The Knight engine has made many claims since it appeared two years ago. I do not know if this motor gives more power, but it is certainly very silent, and yet I should not, I think, even yet throw over the faithful poppet valves. Poppet valves have done good work and will, I am sure, continue to do so. Still many have written asking my advice on this question, and now that a small Knight is on the market I hope some day to give my experience of a run in one.

Last year the exhibition of Messrs. A. Darracq and Co., Limited, of Walnut Tree Walk, Kennington, was undoubtedly of interest to the profession on account of the introduction of a 14-16 car at 225 guineas. The display this year at Stand 37 is equally worthy of close inspection. Half-a-dozen models are mounted—a 10 h.p. four-cylinder two-seater, three 15 h.p., and a landaulette on a 22 h.p. chassis. The 15 takes the place of last year's highly satisfactory 14-16. The price complete with standard body is £275, and although this is an advance on the figure asked for the 1910 car, the more expensive design of the chassis, better-class body, and high side doors to the driver's seat make it even better value than last season's model. One of the chasses is fitted with a torpedo body of the firm's own design, price £295; another, with a two-seated body, has been produced especially for the profession, and with hood, wind-screen, and a commodious tool-box at the back and high side doors to the driver's seat is excellent value for £295. The four-cylinder 10 h.p. should be a sweet-running car. The cylinders are 68 mm. by 120 mm., which means a £1 11*s.* 6*d.* tax. The price with a standard body is £210.

The Deasy Motor Car Company, Limited, of Coventry, are on Stand No. 66, and are showing their new small four-cylinder model, which has a worm-drive back axle, gate change-speed, and detachable wire wheels, and a most comfortable two-seated landaulette body.

The De Dion Bouton Company, of Great Marlborough-street, W., have several models on Stand No. 36. There are few departures from the 1910 type, except that a new two-cylinder engine has been brought out, and that in some there is an increased length of stroke in proportion to the bore. On the lower-powered cars a new plate clutch is fitted. All the engines now have high-tension magneto ignition.

The most striking object on the stand of Messrs. S. F. Edge, Limited, Stand No. 39, is a replica of the Napier car that gained the Grand Prix at the Brussels International Exhibition, and which was subsequently destroyed by fire. It is a cabriolet, and therefore can be used as a entirely open or a completely shut car. I noted many novel features in detail of finish, notably some beautiful panel-work in the interior and some very comfortable moveable seats. The attraction to doctors will be the 15 h.p. chassis, highly polished all over, and exquisitely finished in every detail by hand. The special points are forced lubrication through a hollow crank-shaft, wide and efficient road springs, accessible magneto, with advance and retard actuated by a lever on the steering wheel, water circulation by thermo-syphon, and a multiple plate clutch, two-jet carburetter, and live axle with a worm drive. A model de luxe landaulette on a 15 h.p. chassis, painted jet-black with fine lines in white, and white wheels picked out in black, is also worthy of notice.

At Stand 252 the Electric and Ordnance Accessories Company of Aston Manor show a standard car front wheel fitted with Timken bearings. This is mounted on a cast-iron base and revolves by means of an electric motor. A weight represents the end thrust, and the arrangement illustrates the capacity of this bearing to withstand side-thrust loads. The rollers and surfaces against which they bear are adjustable on account of their taper shape, which certainly is an advantage over the ordinary and non-adjustable bearing.

Messrs. J. C. Fuller and Son, of Old Ford, E., devote a large portion of Stand No. 258 in the gallery to illustrating their devices for car lighting. Their system of wiring, which they term "wireless," acts by enclosing the insulated conductor in a metal sheath, which later serves as a return for the current. This method obviates unsightly loose wires, and the sheath is so small in diameter as to be almost imperceptible. The mechanical act of placing the lamp on the bracket makes electrical contact, thus avoiding the one trouble of the generality of electrical lighting—the connecting and disconnecting of wires. Their dynamo is very small and compact, and can be driven by either direct gear or a V belt. The standard machine is wound for an output of nine volts and will work two head-lights, two side, tail, and interior lamps. When the E M F drops below normal the circuit is automatically broken, and in addition it is interrupted by mechanical means depending upon the rate of rotation of the armature.

Every motorist has an interest in cutting down that big item of expense to motorists, the upkeep of tyres, and all will be interested with the exhibit at Stand No. 208, where Messrs. Harvey Frost and Co., Limited, of 39, Great Eastern-street, show their various vulcanising plants for repairing covers and tubes. They also show a new all-rubber motor tyre tube with an absolutely flush and therefore frictionless join. This tube has a flush valve seating and the valve stem is fitted with the "Warland" dust and rust proof cap, which is so easily attached and detached.

The London Motor Garage Company, Limited, of Wardour-street, W., on Stand No 82, show various types of the Charron car. This motor was fully described in THE LANCET of July 2nd, 1910, and the mechanical details of 1911 differ but slightly from those previously given. This firm are prepared to enter into a contract for the maintenance of their cars and so to relieve the owner of all the worry incidental to the care and management of car and driver.

Messrs. Markt and Co., of City-road, E.C., have on Stand No. 232 a variety of the Jones speedometers; also their little giant wheel-pulling device, which is most useful for drawing off stubborn wheels.

At Stand No. 30 Messrs. Morgan and Co., Limited, of Long Acre and Old Bond-street, have a fine collection of Adler cars, including the 12 and 15 h.p. The former was described in THE LANCET of Feb. 19th, 1910, and there cannot be two opinions as to the attractiveness of these models, which, moreover, can be purchased with confidence that every one will yield excellent service.

The Milnes-Daimler Company, of Tottenham Court-road, have, on Stand No. 143, a fine show of the latest Mercedes models, including a live-axle 15 h.p. chassis, which has a double cone leather clutch, high-tension ignition, and a four-cylinder 70 mm. by 120 mm. engine. Their 40 h.p. has a "Mercedes Knight" engine.

Messrs. Minerva Motors, of Holborn-viaduct, on Stand No. 61, show their 16 h.p. landaulette, which has a silent Knight engine, a strengthened back axle, cardan shaft with universal joints at both ends, and the shaft is completely enclosed in a pressed steel casing, which serves as a central torque tube. Bosch dual ignition takes the place of the single ignition that was used on last year's type.

The New Engine Company, of Acton, W., are on Stand No. 24. Their special feature is "No bonnet." The machinery is arranged in the centre of the chassis, thus allowing greater body space; in fact, the body is carried in front of the rear axle, which results in extraordinary smoothness, even over the roughest roads.

Messrs. Panhard and Levassor, of Acton, W., present on Stand No. 43 a fine set of models, all painted the well-known Panhard green. One body is by Vincent of Reading, another by Messrs. Barker, and both are strikingly handsome in appearance and well finished. On the 25 h.p. a silent Knight engine is fitted, and on the 12–15 h.p. the ordinary and certainly excellent poppet valve motor supplies the power. Messrs. Panhard now employ the popular live axle instead of transmission by chains.

The Phœnix Motors, of Caledonian-road, N., are on Stand

No. 138. Like all keen manufacturers, this firm have carefully considered the question of alterations in their models for 1911, and as a result of the past success they have decided that no amendments are called for. Their feature is a central Hans Renold chain for transmission of the power from the gearbox to the live axle, which has the advantage of flexibility. A two-cylinder Minerva 90 mm. by 100 mm. engine is fitted on the 8–10 h.p., and a 102 mm. by 115 mm. on the 10–12 h.p.

On Stand No. 46 Messrs. Renault Frères, of Newman-street, W., show four cars and two chassis, and these all undoubtedly display the excellence of workmanship for which this firm is noted. The bodies, too, are on a par with the engines, especially a limousine landaulette by Hooper, and an ideal sedan coupé by Rothschild. The latter is fitted on their two-cylinder 8 h.p., and is a very suitable car for a professional man.

At Stand No. 171 in the gallery the Rotax Accessories Company, of Great Eastern-street, E.C., show the Rotax-Leitner car lighting system, also wind screens suitable for torpedo bodies, and an extensive range of mascots, tyre pumps, horns, and tool kits.

The Star Motor Works, of Wolverhampton, are on Stand No. 64. These makers have for years catered for the medical profession, and the five cars which they have on view this year are excellent examples of their productions. The 12 h.p. has an engine 80 mm. by 120 mm. stroke, and there is a special universal joint between the clutch and gearbox, which latter has now four speeds forward, with direct drive on the top.

The Sunbeam Motor Car Company, of Wolverhampton, are represented on Stand No. 69 by a couple of chassis and three complete cars. The car that will appeal to the profession is certainly the 12–16 h.p., which has four cylinders 80 mm. by 120 mm., worm drive, with the transmission tipped, so as to make it one straight line. Four forward speeds are fitted, with the direct drive on the top speed.

The Swift Motor Company, of Coventry, are on Stand No. 44. The popular 7 h.p. single cylinder, which was described in THE LANCET of July 23rd, 1910, has now an entirely new engine fitted, and the main bearings are of phosphor bronze. These are attached to the upper portion of the crank case, the lower half merely acting as an oil reservoir. The ignition is by magneto with advance and retard lever.

Messrs. C. A. Vandervell and Co., of Acton Vale, W., show their variable speed dynamo car lighting system, in which, at a very low cost, a constant voltage is secured over an astonishingly wide range of speed without the slightest mechanical complication. Their smallest dynamo, costing some £7 7*s.*, weighs about 16 pounds, is driven off the engine, and will give 5 ampères at 4 or 6 volts, which is sufficient to keep an accumulator charged and to light the usual side, tail, and interior lamps of a car. A full range of C.A.V. lamps, ignition coils, magnetos, and electrical fitments are also shown.

The feature of the exhibition of the Valveless Car Company, of Prince's-street, W., is a sectional engine so cut away that the valveless system can be easily seen.

The Vulcan Motor and Engineering Company, of Southport, have on Stand No. 87 three samples of their 15·9 h.p. cars, one of which, fitted with high side doors, buttoned upholstering, black leather hood, and folding wind screen, is specially designed for a doctor's use. On this car the crank chamber, flywheel pit, and gearbox are all bolted up together and three point suspended. The cylinders, 80 mm. by 120 mm., are cast in pairs. Cooling is by thermo-syphon, and the water jackets round the valve chambers are of unusually generous dimensions. The crank shaft has three long bearings, and the connecting rod ends have Walker-Hanna patent bearings, which permit of new ones being put in without any expert assistance. The inlet valves are paired for each cylinder, and the inlet passages for the mixture are cast between them, thus permitting warming of the gases on their way. The clutch is of the leather-faced cone type. Lubrication is by a rotary oil pump, with a tell-tale on the dash board. Ignition is by a Bosch magneto driven off the distribution gear. Three speeds forward and a reverse are provided, and the final drive is by an overhead worm through a flexible joint.

Messrs. Warwick Wright, of High-street, Marylebone, W., are on Stand No. 74. Their 12–14 model, which will chiefly appeal to the profession, has an engine 75 mm. bore and 110 mm. stroke. The features are the usual metallurgique clutch, spring drive, pressure fed petrol, four-speed gearbox, and control levers on the steering column. All their coach work, it will be noticed, is by Vanden Plas, and is really a revelation of artistic sense, and gives the maximum amount of room with luxury of upholstery.

The Wolseley Tool and Motor Car Company, of Birmingham, have always been favourites with the profession, and their present models 12-16 and 16-20 h.p. cars are sure to attract attention, especially from old clients, all of whom had such good work out of their early and excellent little 6 h.p. cars. The 12-16 model was described in THE LANCET of Sept. 11th, 1909, but since then several alterations in engine details have been made. The valves are of larger diameter, and the carburetter is now more accessible. The starting handle is carried on the engine in a manner similar to the larger Wolseley cars. The change-speed and brake levers have been altered to render them more suitable for bodies with closed-in fronts, and the reverse lock has been replaced by a push button on the change-speed lever. Both front and rear wheels are fitted with Timken roller bearings, which are held in a cage, adjustable independently of the hub, to facilitate removal of the wheels. A torque bar has been added, the springs have been lengthened, and the frame is built narrow in front to give a good steering lock. The four cylinders have a bore of 79 mm. and a stroke of 114 mm., thus bringing the car into the (to doctors) £2 2*s.* tax class. The transmission of power to the live axle is by worm gearing. The car shown has a rotonde phaeton body, with a scuttle dash and high driver's doors, and with a Cape hood and a wind screen constitutes an ideal car, certainly worthy the consideration of prospective purchasers. The 16–20 h.p. is shown in chassis form, and is made in two wheel bases. The short wheel base is long enough for the usual touring body and the longer one answers for a closed carriage. The rear axle is worm-driven, and to reduce the angle of the propeller shaft universal joints the engine and gearbox are inclined to the main frame. As on the smaller model, the valve area has been increased and the starting handle is on the engine. The carburetter is carried high and arranged for pressure feed, the air pump for the pressure being combined with the oil pump. The clutch has an adjustable spring and is of the metal-to-metal multiple disc kind. The gearbox provides four speeds forward and one reverse, the direct drive being on the top.

Other cars and accessories, as well as the general features of the cars, will be considered next week.

(To be continued.)

THE MEDICAL INSPECTION OF LONDON SCHOOL CHILDREN.

Letter from the Board of Education.

THE Education Committee of the London County Council on Oct. 26th had before it a letter from the Board of Education dated Oct. 7th, 1910, with reference to the provision in the metropolis for the medical inspection of school children. The Board stated that the work of the inspecting officers was generally satisfactory and thorough, but on considering the facts reported by its medical department the Board was unable to avoid the conclusion that the work of the staff of inspecting officers was not adequately organised and controlled, and that there was little or none of that effective supervision or guidance in the primary work of medical inspection which was absolutely necessary if a large staff of part-time officers was to be employed. Moreover, the arrangements for following up the defects and ailments disclosed by inspection to the stage of treatment and for securing the maximum advantage from the Council's own expenditure on treatment had been ineffective and unsatisfactory. The visits of the Board's officers fully confirmed the view expressed in a former letter to the Council that the arrangements for inspection in London did not comply with the requirements of the Education (Administrative Provisions) Act, 1907, and of the Code for 1909–10.

On a review of all the facts, the Board could not resist the conclusion that by adopting or acquiescing in a scheme of medical inspection widely different from the schemes which had approved themselves to other great education authorities the Council had not only placed itself in direct conflict with the Code and the Act, but had failed to lay a satisfactory foundation for the work of amelioration it had in

view. If the Council was to avoid waste, confusion, and embarrassment in this matter, a radical change in the organisation of medical inspection was required. The Board has no means of judging whether the proposals recommended to be adopted as from Jan. 1st, 1911,[1] would insure, in fact, the satisfactory organisation and direction of the work of medical inspection and the other branches of the school medical service of London. But as regards the proposal to increase the staff of school doctors it appeared to the Board that the number of inspecting officers recommended could not by any possibility suffice to carry out within the year the number of inspections required by the Board's minute made under section 13 of the Act of 1907 on June 25th last, modifying article 58 (b) of the Code for 1909, unless they were to be available for the whole of the 12 months of that year. The proposals before the Council, however, were recommended for adoption, not as from the reopening of the schools after the summer holidays, but as from Jan. 1st next. In these circumstances it was imperative that consideration should be given by the Council at once to the question of supplementing the scheme now before it, and such further medical assistance should be provided as might be necessary to secure that the requirements of the Board's minute of June 25th should have been fully and not partially satisfied in all public elementary schools during the current year—i.e., the year ending July 31st, 1911—and that compliance with those requirements should not be confined to the later months only of that year.

In view of the urgency and importance of the matter the Board asked for an early reply, giving precise information as to the changes to be brought in operation during the present autumn to remedy the many and grave defects in the present system of medical inspection in the metropolis, and to bring to an end the Council's long-continued failure to carry out the requirements of Parliament in this respect, so gravely affecting, as it did, the health of the rising generation in London, for which the Council was responsible.

Draft Reply approved by the Education Committee.

The subcommittee recommended that the clerk be directed to reply to the Board of Education explaining that the summer recess was the cause of the delay in replying to the Board's letter of May 17th, and setting forth the increases in the staff of school doctors and the central medical staff agreed upon by the Education Committee in July last.[2] The suggested letter proceeded: "In view of the long recess it was found impossible to bring this scheme to the Council before Oct. 25th, and the Council on Nov. 1st approved without modification the scheme which had been informally brought before the notice of the Board of Education." (It will be observed that the subcommittee took for granted the approval by the Council of the recommendations of the Education Committee discussed this week.) The letter concluded: "The Council gathers that the Board does not suggest that the number of officers proposed by the scheme referred to will not be sufficient under normal circumstances to carry out the requirements of the Act and of the Code for 1909–10, as well as to devote attention to the other phases of medical inspection which are not required by the Act or Code but on which the Council lays great stress. It is suggested, however, by the Board's letter that owing to the date on which the last of the staff will be appointed it will not be possible to carry out before July 31st, 1911, the requirements of the Code for the current educational year. In this connexion it should be stated that the Council has devoted great attention to this aspect of the question, and the Board may rest assured that the requirements of the Code as at present understood will be fully carried out within the current educational year."

The draft letter was approved and forwarded to the Council, which discussed on Nov. 1st the letter from the Board of Education and the scheme reported in THE LANCET of August 6th last, submitted by the Education Committee at the same time.

Discussion at the London County Council.

At the meeting of the Council on Nov. 1st Mr. HOBSON criticised in detail the Education Committee's estimate of the number of inspections which could be made in 12 months by 100 quarter-time medical officers. It was proposed to inspect the children at three periods: on admission, and between the ages 8 and 9, and 12 and 13. He congratulated the committee on being in advance in that respect of the Board of Education whose proposals were too narrow. The number of children in London requiring inspection was estimated at 220,000, and to inspect these a staff of 100 quarter-time medical officers was to be provided. Taking 100 quarter-time medical officers as equivalent to 30 full-time men (the quarter-time officers did rather more than a quarter of a week's work) and deducting one-fifth, or six medical officers, whose time would be taken up with other work—urgent cases, re-examinations, &c.—there remained 24 medical officers to do the work—not in a year, but before July 31st next. The Board of Education, in one of the gravest and most considered rebukes ever passed upon an education authority by a Government department, gave 7000 cases as the absolute maximum one medical man working full time could examine in a year, and the experience of Bradford and Surrey, after allowance had been made for difference of conditions, appeared to confirm this view. The figure 7000 multiplied by 24, the number of full-time school medical officers to which the Council's staff was equivalent, gave 168,000, leaving a deficit of over 50,000. Until Jan. 1st, 1911, only 72 quarter-time medical officers would be at work, so that this figure was an under-statement.

Mr. FRANK SMITH urged that the Council was not adequately following up medical inspection with treatment. By using the hospitals for giving treatment the Council was really doing a disservice to those institutions, because people were arguing that as hospitals were being subsidised out of the rates there was no need to give voluntary subscriptions. Thanks to the intervention of the Council poor people were being deprived of the free access to the hospitals they formerly enjoyed. Mr. Smith mentioned a case in which a parent on his own initiative sent his child to an ophthalmic hospital. The child was asked what school it attended, and a few days later the father received from the Care Committee a notice calling upon him to pay the cost of treatment on penalty of a fine or a term of imprisonment.

Mr. CYRIL JACKSON, chairman of the Education Committee, asked the Council to rely on the opinion of Dr. Kerr, who was the pioneer of medical inspection in this country, that the proposed staff was adequate. If the work did get behind, some of the inspection which the Board did not absolutely require the Council to carry out might be dropped temporarily, or a few extra medical officers could be appointed. As to quarter-time as compared with full-time medical officers, the quarter-time system was tried on the advice of the medical officer, who was of opinion that it enabled the Council to obtain the services of a large number of very able young medical men who could give part of their time while they were building up a practice. On the other hand, there were advantages in appointing full-time officers, and the question might be reconsidered whenever it was thought desirable.

An amendment requiring the Education Committee to submit definitely a supplementary estimate in order that the number of school medical officers might be increased was rejected by 62 votes to 45.

The Council then approved the scheme for extending medical inspection in the way proposed by the Education Committee, and for the rearrangement of the medical staff as follows: Three additional full-time assistant medical officers to be appointed, two as from Jan. 1st, 1911, and one as from Sept. 1st, 1911, each at a salary of £500 a year. From Sept. 1st, 1911, the present scheme for the appointment of part-time school medical officers to be abolished and to be superseded by the following scheme: 100 school medical officers to be employed, each at a salary of £120 a year, including travelling expenses; 25 medical officers to retire as from August 31st, 1912, and thereafter 25 yearly; the vacancies thus caused to be filled by the appointment of 25 medical officers yearly.

A decision regarding the letter from the Board of Education was postponed after an interesting debate which showed that the Council was perfectly prepared to revise its present system of medical inspection.

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[1] THE LANCET, August 6th, 1910, p. 424.
[2] Ibid.

HARVEIAN SOCIETY OF LONDON.—The annual dinner of this society will take place at the Café Royal, at 7 P.M., on Nov. 10th. Dr. M. Handfield-Jones, the President, will occupy the chair.

INTERNATIONAL CONGRESS OF RADIOLOGY AND ELECTRICITY, BRUSSELS.

THE opening meeting of the Congress was held in the Palais des Fêtes of the Exhibition on Sept. 13th. Professor DE HEEN, the President, thanked the King and the Government for the welcome they had extended to the Congress.

International Standard of Radium and Radio-activity.

Professor E. RUTHERFORD (Manchester) read his report on the Preparation of an International Standard of Radium. For this purpose the Congress nominated a provisional international committee composed of Madame Curie, Professor Rutherford, M. Boltwood, M. Soddy, M. Eve, M. Meyer, M. Halm, M. Meyers, M. Geitel, M. Schweidler, and M. Debierne, with the addition of M. Duane and M. Dane from Madame Curie's laboratory. This committee was instructed to report to the Congress on the last day of the session.

Mr. W. DEANE BUTCHER (London) presented to the Congress the report of the Standards Committee of the Roentgen Society, and a communication from the President, Mr. C. E. S. Phillips. He drew attention to the fact that an international standard of radio-activity was of equal importance to the radiologist and to the physicist, as the basis on which to found the dosage of X rays and the calibration of Roentgen tubes and apparatus.

The following was the report of the Standards Committee to the Congress: (i.) Madame Curie will prepare a standard of pure metallic radium containing about 20 milligrammes. (ii.) When the Standards Commission shall have reimbursed Madame Curie the standard shall be under the control of the committee for comparison with secondary standards. This standard shall be kept in Paris. (iii.) National scientific laboratories may procure secondary standards which have been compared with the international standard. (iv.) Smaller secondary standards may also be prepared with the approval of the committee. (v.) The emanation of radium being much used in scientific research the committee considers it desirable to adopt a unit of quantity of the emanation. In accordance with the proposition of the Congress the international committee recommends the name of "Curie" to be given to the quantity of the emanation equivalent to one gramme of metallic radium. The quantity of emanation in equilibrium with one milligramme of radium will be one millicurie. (vi.) The committee will study the question whether a special name should be given to a smaller quantity of radium and to the emanation in equilibrium with it. (vii.) As some members of the Standards Committee were absent these propositions are only provisional. A committee consisting of physicists and physicians was constituted to prepare the question for a future congress, and to determine the date and place of the congress, and was composed as follows:—Physicists: Madame Curie, Professor Rutherford, M. Van Aubel, M. Righi, M. Exner, M. Boltwood, M. Vershaffels, M. Vien, M. de Heen, and M. Daniel. Physicians: Mr. Deane Butcher, Dr. Bergonié, Dr. Bayet, Dr. His, Dr. Lester Leonard, Dr. Ludwig, and Dr. Hauchamps.

Madame Curie read a paper on the Preparation of Metallic Radium. She made use of the method described by M. Guntz for the preparation of metallic barium. The method consisted in preparing an amalgam and driving off the mercury by distillation in an atmosphere of pure hydrogen. The amalgam was obtained by the electrolysis of a solution of pure radium chloride (atomic weight, 226·5), using a cathode of mercury and an anode of platinum and iridium. Pure metallic radium is a brilliant white metal, fusing suddenly at 700°. It alters rapidly in air, becoming black from the formation of a nitride. It blackens paper when allowed to fall on it. It decomposes water, giving an energetic effervescence and itself disappears, thus showing that the oxide is soluble in water.

Section of Biology and Medical Radiology.

Presidents of Honour: Dr. Bergonié, Mr. Deane Butcher, Dr. Lester Leonard, Dr. Schiff, Dr. His, Dr. Miura, and Dr. Decref; Dr. Leon Hanchamps was nominated secretary.

Dr GUILLEMINOT read a paper on the Action of the New Radiations on the Development of Plants. He used 20 milligrammes of radium of activity 200,000 (2 milligrammes of pure radium) at a distance of 2 centimetres for times varying from several hours to two months.—In the discussion which followed Professor SCHIFF said he had only obtained negative results.—Dr. LÖWENTHAL considered that the different rays had a different biological influence.—Professor MIURA (Tokio) considered that the injurious action of radium on the living cells depended greatly on the time of exposure and the energy of the cells.—Dr. SUDGENT (Berlin) had found that sodium mono-urate was decomposed by radium *d*—i.e., by a decomposition product of radium.—Dr. HALM (Berlin) discovered that radium *d* emits soft β rays. Sodium mono-urate was not decomposed by the α and γ rays or by the ordinary β rays. Hence we had a means of differentiating the radiations by their chemical action.—Dr. KASPARI said the experiments of Köousche showed that a stimulation of the plantule was produced by the radium radiations. His own experiments showed the same results. The difficulty was to place the exact limit where the stimulating action ceased and was replaced by a depressing action. This was also of importance in the radium treatment of malignant tumours.

Dr. HARCKMAN of Toumai read a paper on the Ionic Theory in Biology.

Madame FABRE and Dr. OSTROWSKY (Paris) read papers on the Action of Radium on Toxins, and on the Inverse Action of Radium on various Species of Microbes.—Dr. JABOIN drew attention to the different units of radium dosage used in France and Germany respectively. In France the dosage was by weight—microgrammes of radium, whereas the German dosage by electrostatic units varied with the capacity of the electroscope employed. One-hundredth of a microgramme—i.e., a hundred-millionth of a gramme of pure radium—was capable of giving a quantity of emanation with a potential of 7000 volts.—Dr. WICKHAM drew attention to some experiments which he had made on the action of radium on staphylococci. He found that radio-active solutions in extremely small doses had a retarding effect greatly in excess of that produced by the direct rays of radium. The emanation of radium appeared to exercise a special action on cultures, a result which was in accordance with the therapeutic action of the emanation obtained by injecting soluble or insoluble preparations of radium into the substance of a tumour.

Dr. D'HALLUIN (Lille) contributed papers on (*a*) Injection of the Vascular System for Stereoscopic Radiography; (*b*) the Method of the Anaglyph for Stereoscopic Reproduction of Medical Photographs. Marey, Rémy, and Contremoulin were the first to inject the veins for purposes of skiagraphy, and to show the utility of stereoscopic radiography in the illustration of anatomical and medical subjects. The author showed a marvellous series of stereoscopic clichés of the injections of the upper and lower limb, the heart, the kidney, the lungs, and the circulation of the fœtus. The material used for injection was a suspension of vermilion in essence of turpentine. (In stereoscopic observation we are met with the impossibility of showing stereoscopic pictures on the screen. To obviate this, Ducos invented the method of anaglyphs—i.e., the projection of the right stereoscopic image in red and the left in green, the composite image being viewed through spectacles furnished with red and green glasses.)

Dr. FIRSSEL (Stockholm) read a paper on Gastric Terminology from the Radiological Standpoint. The division of the stomach into the pars cardiaca and pars pylorica was only an artificial one, since the position of the angle between the two portions was very inconstant. The real division should be into the stomach proper and the antrum pylori, since these were distinct organs both functionally and morphologically. The author gave to the first of these segments the name of saccus digestorius, and to the second canalis egestorius, Digestionsack and Entleerungskanal respectively. The three regions of the stomach, cupola, body, and base, he designated by the names fornix, corpus, and fundus. He also distinguished between the pars verticalis and the pars transversalis, although these had no morphological difference.

Dr. DECREG (Madrid) read a paper on the Diagnosis of Schlatter's Disease. Roentgen diagnosis had been of the greatest service in the diseases and injuries to the bones and joints of children. It was not uncommon to mistake the retardation of the joining up of the epiphysis at the end of the humerus for a fracture or a traumatism of the elbow. Still more important was the Roentgen diagnosis of the osseous centre forming the tuberosity of the tibia. This centre, which appears late in the course of development,

had been accurately studied by radiographic means, and the deformity which often occurred as a consequence of its malformation was known in Germany by the name of Schlatter's disease. It was usually brought under our notice in young patients of from 14 to 18 years of age, and was generally the result of over-exertion at football or of "pelote" in Spain.

Dr. LEVIN and Dr. BARRET (Paris) read a paper on the Radiological Exploration of the Stomach.—Professor HIS (Berlin) said that the time necessary to empty the stomach depended on the contents of the intestines and the habits of the individual. Kulbs had shown that the stomach of a well-fed animal was emptied much more rapidly than the stomach of an animal fed only every two or three days. In human pathology we often found false dilatation due to habitual constipation and the bad habit of eating a heavy meal once a day.

Mr. HEINZ BAUER (Berlin) read a paper on the Measurement of the Hardness of a Roentgen Bulb, and showed his electrostatic electrometer for measuring the voltage between the two electrodes of an X ray tube.—In the discussion Professor BERGONIÉ alluded to a series of experiences four years ago on the use of the electrometer for the measurement of the degree of hardness of the rays emitted by an X ray tube. In his laboratory the instrument of Hartmann and Braun had been used for over a year, but had to be abandoned in consequence of the cost.

Dr. AUBOURY read a paper on the Radiography of the Small Intestine.

Dr. LESTER LEONARD (Philadelphia) read a paper on Rapid Roentgenography of the Thorax and Abdomen, and showed some beautiful stereoscopic plates of the movement of the small intestines and of the stomach.

Professor MIURA (Tokio) read a paper on the Treatment of Painful Skin Affections by Radium.—In the discussion which followed Professor SCHIFF of Vienna drew attention to the cure by radium of pruritus, the result of neurodermatitis. Radium appeared to have a specific action on the nerves of sensation.

Dr. GUDZENT (Berlin) read a paper on the Action of Radium on the Uric Acid of the Organism, in which he stated that radium emanation when introduced into the organism behaved like an indifferent gas. When introduced by inhalation, ingestion, or injection it was almost entirely eliminated in a few minutes by the lungs. A very small quantity was eliminated by the kidneys. There was no cutaneous penetration or elimination. The emanation was transported by the blood to the cells of the organism, and there set up a biological action which was due partly to the emanation itself and partly to the products of its decomposition. Radium emanation could transform urate of soda into a more soluble substance, and even break it up into ammonia and carbonic acid. This influence was exerted by radium and by one of the products of decomposition of the emanation which had the property of giving off very soft β rays. This influence of the emanation of radium had been observed in animals as well as in man. The emanation of radium had an inhibitory effect on the movements of the leucocytes, and on the inflammatory processes, and an activating effect on organic ferments, but it had no bactericidal nor antitoxic action. The stimulating effects on ferments had been observed with autolytic and diastasic ferments, as well as the ferments which preside over the metabolism of the purins. In gout, a disease of faulty metabolism, the radium emanation was of great efficacy, facilitating the elimination of uric acid. In 13 out of 14 cases of gout the uric acid in the blood had disappeared as a result of treatment with the emanation.

Dr. CHEVRIER (Paris) read a paper on the Effects, General and Local, of Small Doses of Radium. The doses consisted of from 20 to 40 microgrammes of radium.—Dr. WICKHAM stated that he had obtained good results in lupus from radio-active solutions prepared by M. Jaboin. He had obtained better results, however, from injections of the insoluble salt. In a case of cancerous nodule of the breast he injected 12 centigrammes of a preparation of radium sulphate in paraffin vaseline containing 10 microgrammes per cubic centimetre. In other cases he injected solutions of a soluble salt containing 10 microgrammes per cubic centimetre. In these cases the radio-activity ceased in about four days. Some years ago he studied elimination by the urine after injection of radio-active mercurial solutions. The elimination was at a maximum on the first and second days, and completely disappeared after four days.

Dr. FORSSELL (Stockholm) read a paper on Experience in the Radium-therapy of Cancerous Tumours. The author had treated 38 cases of cancerous tumour at the Seraphina Hospital of Stockholm. Radium had an effect similar to but more efficacious than the X rays. In most superficial cancers of the skin the two methods were alike. In cancer of the lips and mouth radium was superior to X rays. In certain cases deeper subcutaneous tumours had disappeared where X rays had but little effect. The best results were obtained with Dominici's tubes embedded in the tumour. The pain of cancerous tumours might be relieved by radium entirely or in part.

Madame Dr. FABRE (Paris) and Dr. MAX EGGER (Geneva) communicated a paper on the Effect of Radium in a Case of Multiple Sclerosis. The patient was a syphilitic, 42 years of age, with fulgurating pains, abolition of the patellar reflex, and Argyll Robertson pupils. Three radium applicators with a lead filter were placed along the spine for 24 hours with great relief of the symptoms. After two more applications there was a further regression of the symptoms.

Dr. WICKHAM and Dr. DEGRAIS (Paris) communicated a paper on the Radium Treatment of Angioma.—Dr. D'HALLUIN (Paris) bore testimony to the marvellous effects of radium in these cures. He inquired if it were safe to apply the cross fire of two or more radium applications on the forehead. He himself had no fear of any injury to the brain. In the worst cases of hæmorrhagic nævus he had never had the least trouble from bleeding, although he had feared it and warned the friends of the possibility.—Madame Dr. FABRE had irradiated the brain and spinal cord in cases of syringomyelitis and other lesions of the nervous centres without any trace of ill-effect, in one case using 4 centigrammes of a radium preparation for 24 hours. There was no danger in irradiating the nervous system with large doses of radium, provided the radiations were filtered. The lesions, if any, were not in the nerve cells, but due to hæmorrhage from destruction of the endothelium of the vessels.—Professor BÉCLÈRE (Paris) believed there was no danger to the brain either from radium or Roentgen irradiation of the scalp when properly applied. Any ill-effects would be shown rather on the cartilaginous cells of the skeleton of the face and cranium which were not yet ossified.

Dr. KERNEN and Dr. NEUMANN (Kreuznach) read papers on the Exchanges in Gout under radio-therapeutic treatment and the absorption of the radium emanation.—Professor HIS (Berlin) drew attention to the negative results which had been obtained at the medical clinic of Berlin, results entirely opposed to those of Dr. Kernen.

During the Congress the Société Belge de Radiologie, which is a very strong one both in numbers and in *personnel*, held a meeting at which Mr. Deane Butcher made a communication on Auto-Immunisation by means by X Rays and Radium.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on Thursday, Oct. 27th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following gentlemen having passed the required examination were admitted Members of the College: John Bright Banister, M.D. Camb.; Alexander Edward Gow, M.B. Lond., L.R.C.P.; Frederick Arthur Lucas Hammond, L.R.C.P., Major, I.M.S.; Henry Pratt Newsholme, M.B. Oxon.; Ernest Henry Shaw, L.R.C.P.; Cuthbert Allan Sprawson, M.D. Lond., L.R.C.P.

Licences to practise medicine were granted to 68 gentlemen who had passed the necessary examinations.

The PRESIDENT stated that at the celebration of the 400th anniversary of the birth of Dr. Caius, recently held at Cambridge, the President and other officials of the College were entertained at Caius College, and the hospitality there enjoyed was returned by inviting the Master and Fellows of Caius College to be present on the occasion of the Harveian oration and banquet. The President also stated that a copy of the portrait of Francis Glisson in the possession of the College had been presented to Caius College.

The PRESIDENT announced that the Jenks Scholarship had been awarded to Mr. Gerald Gibbons.

The following communications were received: 1. From the Home Office respecting an International Congress for the Amelioration of the Condition of the Blind, to be held at Cairo in February next. 2. From the Secretary of the Royal College of Surgeons of England. 3. From Dr. Herbert French, offering on behalf of the medical staff of Guy's Hospital to present to the College a portrait of Sir Samuel Wilks. The gift was accepted with acclamation, and the thanks of the College were ordered to be returned to the donors.

A report was received from Dr. Amand Routh, representative of the College at the International Congress of Obstetrics and Gynæcology held in St. Petersburg in September last.

The audited accounts of the College for the year ending Sept. 29th were laid before the Comitia and adopted.

The quarterly report of the College Finance Committee was received and adopted.

Dr. F. W. Andrewes was re-elected a member of the Executive Committee of the Imperial Cancer Research Fund, and Dr. Frederick Taylor was re-elected a member of the Committee of Management.

A report from the Committee of Management, dated Oct. 4th, 1910, was received and adopted. Amongst the matters dealt with in the report the committee recommended:

(*a*) That a candidate who has passed the first examination for the degree of B.Sc. of the University of the Cape of Good Hope with a standard of not less than 50 per cent. be exempted from the first examination of the Conjoint Board in chemistry, physics, and biology.

(*b*) That the course of laboratory instruction in public health given by an officer of the Royal Army Medical Corps in the laboratory of the Sanitary Commission, Gibraltar, be recognised for the Diploma in Public Health, provided that the officer conducting the course is in possession of a Degree or Diploma in Public Health.

(*c*) That the course of laboratory instruction in public health given at the South African College, Capetown, be recognised for the Diploma in Public Health.

(*d*) That attendance on the practice of the City Fever Hospital, Capetown, at which instruction in the methods of administration is given, be recognised for the Diploma in Public Health.

After other formal business had been transacted, the PRESIDENT dissolved the Comitia.

MEDICINE AND THE LAW.

Two Cases under the Workmen's Compensation Act.

THE efforts of the workman to obtain compensation in excess of that to which he may be entitled are well known to medical practitioners. Two recent cases in which "accidents" were held not to come within the provisions of the Act may be cited, although no point of medical interest arises in them, in order to show the nature of the claims that are made against employers, and which they, or the insurance companies, are put to expense in resisting. Both were heard in metropolitan county courts on the same day—Oct. 27th. In the first, at Whitechapel, the workman, employed as a billiard-marker and potman at a hotel, went to bed on the third floor of the building, after the hotel had been duly closed for the night. A disturbance took place in the street outside, and in order to see what was going on, and, as he alleged, in order to prevent injury to his master's property, such as might occur if windows were broken by two women whom he had ejected earlier in the evening, he leaned out of window. In doing this he overbalanced himself and fell, sustaining severe injuries. In the other case mentioned the workman was injured in a quarrel with a fellow workman. His honour Judge Emden appears to have suggested that if there had been evidence that the quarrel arose out of something connected with the employment it might be different, but he, like Judge Bacon in the first case referred to, declined to hold that injuries received as described entitled the applicant to recover compensation on the ground that they were due to accidents arising out of, and in the course of, his employment.

A County Court Judge upon Sanitary Precautions.

At the Gainsborough county court recently a debtor sought to excuse himself from compliance with an order to pay 4*s.* a month on the ground that he was out of work and could not therefore obey. Upon this the county court judge, Sir Sherston Baker, inquired why he was out of work, and received an answer to the effect that the debtor was a jobbing joiner and that members of his family had recently been ill with scarlet fever, so that for a time the sanitary authority had warned him that he would lay himself open to legal proceedings if he entered other people's houses in order to work there. The comment of Sir Sherston Baker is thus reported in the *Daily Telegraph*: "I never heard of such a thing. What right have they to stop a man working without compensating him? Look at the doctors; they go from house to house, visiting fever cases, and are not afraid of going home to their families. They go visiting all manner of sick. Take an action against them; it would serve them jolly well right." Comment upon this judicial utterance is hardly necessary, unless wonder is expressed as to whether the advice given has been followed by its recipient.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

A MEETING of the Organising Committee was held on Oct. 28th in the Royal College of Physicians of London, the President, Sir THOMAS BARLOW, being in the chair.

Letters of regret were received from the following: Dr. T. Dyke Acland, Professor H. G. Barling, Sir James Barr, Dr. Barrs, Mr. George A. Berry, P.R.C.S. Edin., Dr. J. Mitchell Bruce, Sir John Byers, Dr. P. J. Cremen, Sir Halliday Croom, Dr. H. Davy, Professor D. W. Finlay, Dr. J. Magee Finny, Sir Thomas R. Fraser, Dr. Edwin Goodall (Cardiff), Mr. J. W. B. Hodsdon, Professor James Little, Professor H. Littlejohn, Sir Donald MacAlister, Professor Dixon Mann, Professor Howard Marsh, Sir Isambard Owen, Dr. R. W. Philip, Sir G. H. Philipson, Sir Richard Douglas Powell, Mr. J. Scott Riddell, Mr. A. W. Mayo Robson, Dr. F. M. Sandwith, Professor R. Saundby, Professor T. Sinclair, Sir W. Smyly, Professor E. H. Starling, Dr. StClair Thomson, Professor W. Thorburn, and Dr. Norman Walker.

The PRESIDENT pointed out that the list of the Organising Committee was originally drawn up with a view to territorial representation only. At the meeting of the General Committee on Oct. 12th a wish was expressed, and partially carried out, that it should represent also departments of practice. In order to fulfil this wish the following additional members were nominated for election: Miss Aldrich-Blake, Dr. F. W. Andrewes, Dr. J. B. Ball, Dr. Lazarus-Barlow, Dr. J. S. Barr, Dr. E. F. Bashford, Dr. A. E. Boycott, Dr. H. G. Brooke, Dr. W. Bulloch, Mr. Arthur Cheatle, Miss Cock, Mr. Treacher Collins, Mr. A. E. Cumberbatch, Sir W. Dalby, Professor G. Dean, Professor A. F. Dixon, Mr. Dudgeon, Dr. Colcott Fox, Dr. Galloway, Dr. Garrod, Dr. Albert Gray, Dr. Dundas Grant, Professor Greenfield, Dr. de Havilland Hall, Dr. E. Hobhouse, Mr. W. H. H. Jessop, Mr. Robert Jones, Mr. Reginald Jowers, Dr. Lambert Lack, Mr. Richard Lake, Dr. Edward Law, Mr. J. B. Lawford, Lieutenant-Colonel Sir W. B. Leishman, Mr. H. Littlewood, Professor Alexander MacAlister, Dr. P. McBride, Sir John MacFadyen, Dr. C. J. Martin, Dr. W. Milligan, Dr. F. W. Mott, Dr. D. R. Paterson, Dr. F. M. Pope, Dr. J. J. Pringle, Dr. Urban Pritchard, Professor Arthur Robinson, Mrs. Scharlieb, Mr. S. G. Shattock, Professor Sherrington, Professor Lorrain Smith, Mr. Priestley Smith, Dr. G. F. Still, Dr. G. A. Sutherland, Mr. H. H. Taylor, Professor Peter Thompson, Professor W. H. Thompson, Dr. StClair Thomson, Miss Thorne, Dr. Herbert Tilley, Miss Jane Walker, Dr. Watson Williams, Professor Sims Woodhead, and Sir Almroth Wright, and these were unanimously elected with power to add to their number.

The PRESIDENT then nominated the following for election as members of the Executive Committee:—Sir A. Pearce Gould (chairman), Sir Clifford Allbutt, Sir W. Allchin, Mr. A. A. Bowlby, Sir Francis Champneys, Sir W. Church, Dr. Bertrand Dawson, Mr. Clinton Dent, Mr. R. J. Godlee, Dr. Norman Moore, Sir Malcolm Morris, Professor Osler, Dr. Pavy, Sir R. Douglas Powell, Mr. D'Arcy Power, Sir Felix Semon, Mr. Charters Symonds, Dr. Hale White, the Chairman of the Finance Committee, the Chairman of the Reception Committee, the Chairman of the Council of the British Medical Association, a member to be nominated by the Faculty of Medicine of each of the universities,

excluding Oxford and Cambridge (which are already represented), viz. :—England, Universities of Birmingham, Bristol, Durham, Leeds, Liverpool, Manchester, and Sheffield; Scotland, Universities of Aberdeen, Edinburgh, Glasgow, and St. Andrews; Ireland, University of Belfast, Trinity College, Dublin, and the National University of Ireland; and Wales, University College, Cardiff.

Sir A. PEARCE GOULD proposed, and Mr. D'ARCY POWER seconded, the addition of Mrs. Scharlieb to this committee. These members were unanimously elected, with power to add to their number.

The PRESIDENT then stated that Sir Dyce Duckworth had consented to act as the second treasurer with Mr. Makins, and he nominated the following as members of the Finance Committee: Sir Henry Morris (chairman), Dr. Herbert Spencer, Dr. Frederick Taylor, Sir Edgcombe Venning, and Mr. E. Francis White (Putney). These were unanimously elected with power to add to their number.

The PRESIDENT then nominated the following for election to the Reception Committee: Sir T. Lauder Brunton (chairman), Mr. A. E. Barker, Sir W. H. Bennett, Sir Havelock Charles, Sir Anderson Critchett, Sir Thomas Boor Crosby, Mr. Edmund Owen, Dr. Pasteur, Dr. StClair Thomson, Dr. Samuel West, and Dr. Theodore Williams, with power to add to their number.

The permanent officers of the Congress are *ex-officio* members of all committees.

The PRESIDENT then said a few words on the organisation of the various committees. The Executive Committee was intended (*a*) to manage local matters; (*b*) to act as a board of advisers to the President; and (*c*) to receive and consider reports from the Finance Committee, the Reception Committee, and the various sectional committees when appointed. It was to be understood that when the business of a section or sections was to be discussed the President of such section or sections would be summoned to the meeting of the Executive Committee. It might be necessary, in the view of any general regulations being drawn up, that all Presidents of sections should be so summoned. The Organising Committee was intended to act (*a*) when summoned as a whole as the ultimate committee of reference, and of election to appointments of presidents, vice-presidents, secretaries, and councils of sectional committees; and (*b*) to be the source from which special committees could be drawn if necessary to advise and report on matters pertaining to the organisation of the several sections.

The Organising Committee then adjourned.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned Captains to be Majors (dated Oct. 28th, 1910):—John E. Hodgson, Matthew H. G. Fell, William B. Winkfield, Jonas W. Leake, John W. H. Houghton, George M. Goldsmith, Richard H. Lloyd, John M. Sloan, D.S.O., Harry D. Packer, Lawrence Humphry, Arthur O. B. Wroughton, and Frank Ashe.

Lieutenant Wilfred W. Treves, from the Seconded List, is restored to the establishment (dated August 27th, 1910).

Lieutenant Charles V. Nicoll to be Captain (dated Nov. 1st, 1910).

Frederick William Lumsden to be Lieutenant (on probation) (dated Oct. 13th, 1910).

Colonel M. W. O'Keefe, from Rawal Pindi, has taken over the duties of Inspector of Medical Services at the Horse Guards, Whitehall. Lieutenant-Colonel F. W. C. Jones, at present serving at Tidworth Park, has been placed under orders for the Fourth (Quetta) Division. Lieutenant-Colonel C. Birt, on return from special service at Malta, has been appointed to the Dublin District and posted to the medical charge of the Royal Infirmary, Phœnix Park. Lieutenant-Colonel B. McCreery has been appointed to the medical charge of the troops and their families at Perth. An exchange on the roster for service abroad has been sanctioned by the War Office between Lieutenant-Colonel C. W. Johnson and Lieutenant-Colonel S. G. Allen. Lieutenant-Colonel G. F. Gubbin has arrived home from Colaba, India, on leave. Major F. S. Penny has embarked for a tour of service in South China. Captain A. W. Sampey has been transferred from Colchester to Warley. Captain A. C. Adderley on the termination of his course for promotion at the Royal Army Medical College, London, has been posted for duty to Lichfield. Captain P. H. Henderson, from Portsmouth, has joined at Ibsley Camp. Captain F. E. Rowan-Robinson has been granted leave on medical certificate from Colchester. Captain R. B. Ainsworth has been appointed to Cosham from the Royal Army Medical College, London. Captain J. H. Douglass, on completion of duty at Maryborough Heath Camp, has been posted to the Dublin District. Captain A. Hopping has been appointed a Specialist in Radiography and Electrical Science to the First (Peshawar) Division of the Northern Army in India. Captain S. M. Adye-Curran, from Bere Island, has joined at Queenstown. Captain H. T. Stack, from Finner Camp, has been appointed to Belfast. Captain H. Harding, from Churn Camp, has taken up duty at Tidworth Camp. Lieutenant F. H. Somers-Gardner has been transferred to Hilsea, from Rowlands Castle. Lieutenant R. C. G. M. Kinkead, from Cork, has joined at Ballyvonare Camp. Lieutenant T. W. Stallybrass, from Netley, has been appointed to Tidworth Camp.

ROYAL ARMY MEDICAL CORPS EXAMINATION.

An examination of candidates for not less than 15 commissions in the Corps will be held on Jan. 25th, 1911, and following days. Applications to compete should be made to the Secretary, War Office, London, S.W., not later than Jan. 16th. The presence of candidates will be required in London from Jan. 23rd.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel R. H. Castor, civil surgeon of Mandalay, has been granted six months' leave on account of ill-health, with effect from the date he was relieved by Major A. Fenton. The services of Major D. H. M. Graves, Madras Presidency, have been placed at the disposal of the Home Department of the Government of India. Major E. Wilkinson has been confirmed in the appointment of Sanitary Commissioner of the Punjab. Major J. H. Hugo, agency surgeon in Bundelkhand, has been granted six weeks' privilege leave. The services of Captain H. M. Mackenzie, medical officer of health, Simla, have been placed temporarily at the disposal of the Government of Bengal. Captain J. S. Babonau has been selected for plague duty in the Punjab. Captain B. S. Mehta, assistant plague medical officer at Amritsar, has been appointed District Plague Medical Officer at Jhelum. Captain J. W. H. Babington has been appointed to the substantive medical charge of the 76th Punjabis. Captain M. J. Quirke has joined the Civil Medical Department of Madras Presidency. On return from leave Captain J. J. Robb has been detailed to act as Superintendent of the Central Jail at Vellore. Captain C. F. Weinman has been granted three months' extension of his leave by the Secretary of State for India. Captain P. S. Mills has been appointed a Specialist in Radiography and Electrical Science to the Fifth (Mhow) Division of the Southern Army, India. Captain J. A. S. Phillips has been appointed to officiate as Civil Surgeon at Jacobabad. Captain W. P. G. Williams has been posted to Madras Presidency for employment in the Jail Department, and has been appointed to the Central Jail at Coimbatore for a course of instruction. Captain W. S. Patton, of the Madras Civil Medical Department, has been placed on special deputation duty connected with investigations into the occurrence of Delhi sore. Lieutenant A. J. Lee has been appointed to the Officiating Medical Charge of the 3rd Brahmans. Lieutenant F. A. Barker has been appointed Superintendent of the Cellular and Female Jails and Civil Surgeon at Port Blair. Lieutenant G. G. Jolly has been appointed a Specialist in Radiography and Electrical Science to the Fourth (Quetta) Division of the Southern Army, India.

SPECIAL RESERVE OF OFFICERS.

THE undermentioned Lieutenants are confirmed in their rank:—Duncan Macfadyen and Charles M. Page.

William Leckie Webster to be Lieutenant (on probation) (dated Oct. 4th. 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

4th Southern General Hospital: The appointment of Lieutenant-Colonel Charles E. Russell Rendle and of Major Henry W. Webber is antedated to Sept. 29th, 1908.

Attached to Units other than Medical Units.—Major Richard J. M. Coffin resigns his commission (dated Oct. 29th, 1910).

ARMY MEDICAL RESERVE.

The undermentioned Lieutenants to be Captains (dated Nov. 1st, 1910):—John F. Murphy, Samuel K. Adams, and Murray R. Taylor.

ROYAL ARMY MEDICAL COLLEGE.

Mr. Haldane distributed the prizes at the Royal Army Medical College, Millbank, on Oct. 29th. After paying a tribute to the building itself and the excellent equipment of the Royal Army Medical College, which was largely due to the work of his predecessor, Lord Midleton, who, as Mr. Brodrick, threw himself wholeheartedly into the work of raising the Army Medical Department to a higher standard of excellence, he, Mr. Haldane, referred to the experiments which had been made with regard to physical training and endurance, and said that we now knew exactly what the rations of the British soldier fighting under emergency conditions must be in order to sustain him in strength and health. With regard to the new clothes equipment, that was also the outcome of modern physiological science. Very great progress had been made in the reduction of disease in the army, particularly in India, and the whole work of the Army Medical Department had vastly improved in recent years. There was a time when this department did not contribute to science in any large degree, but its modern organisation gave scope for every kind of talent. He instanced the names of Sir William Leishman, Sir David Bruce, and Sir Almroth Wright in connexion with the important bacteriological work done by the Medical Department of the army, and after referring to the importance of physiological work, concluded by reminding his hearers that what was needed was exact knowledge, and if that were obtained the money spent on equipping and maintaining the college, which was one of the most important parts of the British army, would be saved over and over again. The following is a list of the prize-winners:—Lieutenant W. W. Treves, R.A.M.C., first Montefiore prize (first in military surgery), Parkes memorial prize (first in hygiene), Marshall Webb prize (military medical administration), Herbert prize for the highest aggregate; Lieutenant H. E. Shortt, I.M.S, second Montefiore prize—second in military surgery; Lieutenant R. C. Clifford, I.M.S., Fayrer memorial prize—pathology; Lieutenant C. H. H. Harold, R.A.M.C., Tulloch memorial prize (pathology), Ranald Martin prize (tropical medicine); Lieutenant R F. Bridges, R.A.M.C., De Chaumont prize—second in hygiene. It is interesting to note that Lieutenant Treves is a nephew of Sir Frederick Treves.

DEATHS IN THE SERVICES.

Surgeon-Colonel F. H. Welch, A.M.D. (retired), at his residence, Southborough, Kent, aged 71 years. He entered the service as assistant surgeon in 1861, became surgeon in 1873, surgeon-major in 1876, brigade-surgeon in 1886, and retired with the rank of surgeon-colonel in 1895. He served in the Egyptian War of 1882 and was present at the battle of Tel-el-Kebir (medal with clasp and Khedive's star). He also served with the Nile Expedition in 1884–85. Surgeon-Colonel Welch was distinguished for his professional (medical) attainments and writings on various subjects, and won the Alexander prize medal in 1873 and again in 1882. His contributions on enteric fever, military ophthalmia, and especially on aortic and arterial disease in connexion with syphilis may be mentioned as excellent. He was a frequent contributor to THE LANCET.

THE LATE MISS FLORENCE NIGHTINGALE.

At a meeting held at Grosvenor House on Oct. 28th, under the presidency of Lord Charles Beresford, M.P., a committee was formed with the object of considering the various projects recently put forward to perpetuate the memory of the late Miss Florence Nightingale. The committee will consist of Mr. Haldane, Lord Crewe, Lord Pembroke, Lord Selborne, Lord Charles Beresford, Sir Thomas Barlow, Sir J. Dimsdale, Sir W. Treloar, Mr. H. T. Butlin, Mr. J. H. Shore Nightingale, and Miss McCaul, with power to add to their number.

At a meeting held in the Court Room at St. Thomas's Hospital on Nov. 1st it was decided that a fund for providing a memorial to Miss Florence Nightingale, O.M., should be established and that contributions should be invited from all parts of the Empire. Part of the memorial will take the form of a statue.

THE LATE HENRI DUNANT.

M. Henri Dunant, the founder of the International Red Cross Association, died recently at Heiden, in Switzerland, at the age of 82. Profoundly influenced by the work of Harriet Beecher Stowe, Florence Nightingale, and Elizabeth Fry, he organised an ambulance service to deal with the wounded at Solferino, and started the campaign at Geneva, then looked upon as utopian, which led to the formation of the Geneva Conference of 1863. In the following year 12 Powers signed the famous convention "for the amelioration of the condition of soldiers wounded on the battlefield." He received the Nobel Peace Prize in 1901.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8104 births and 4222 deaths were registered during the week ending Oct. 29th. The annual rate of mortality in these towns, which had been equal to 13·1 and 13·0 per 1000 in the two preceding weeks, was again 13·0 in the week under notice. During the first four weeks of the current quarter the death-rate in these towns averaged 13·0 per 1000. In London the death-rate during the same period, calculated on the probably over-estimated population, did not exceed 12·7 per 1000. The lowest reported annual death-rates last week in these 77 towns were 5·1 in Leyton, 5·8 in Hornsey, 7·0 in East Ham, and 7·5 in Willesden, all metropolitan suburban districts with probably over-estimated populations; the rates in the other towns ranged upwards to 18·7 in Stoke-on-Trent, 19·2 in Oldham, 21·6 in Newport (Mon.), and 23·1 in Tynemouth. In London the reported death-rate last week did not exceed 12·9 per 1000. The 4222 deaths from all causes registered in the 77 towns last week were within 9 of the number returned in the previous week, and included 425 which were referred to the principal epidemic diseases, against 504 in each of the two preceding weeks; of these 425 deaths, 184 resulted from diarrhœa, 107 from measles, 42 from diphtheria, 35 from whooping-cough, 30 from enteric fever, and 27 from scarlet fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·3 per 1000, against 1·6 in each of the two previous weeks. No death from any of these diseases was registered last week in East Ham, Wolverhampton, King's Norton, Ipswich, or in 9 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·1 in Preston, 3·2 in Brighton, and 3·7 in Northampton and in Tynemouth. The deaths attributed to diarrhœa in the 77 towns, which had declined in the eight preceding weeks from 527 to 296, further fell last week to 184; the highest annual rates from this cause in the 77 towns last week were 2·0 in Merthyr Tydfil and 2·1 in Warrington. The fatal cases of measles, which been 51 and 75 in the two previous weeks, further rose last week to 107, and exceeded the number returned in any week since the beginning of July; they caused the highest annual rates, 1·5 in Stockport, 1·6 in Brighton, and 2·8 in Tynemouth. The 42 deaths referred to diphtheria corresponded with the number in the previous week, and included 11 in London and its suburban districts, 3 in Norwich, and 3 in Cardiff. The fatal cases of whooping-cough, which had been 49, 47, and 37 in the three preceding weeks, further declined to 35 last week, but showed an annual rate equal to 1·6 per 1000 in Northampton. The 30 deaths referred to enteric fever exceeded by 2 the number in the previous week; 14 occurred in London and its suburban districts, and 2 both in Stoke-on-Trent and in Salford. The 27 fatal cases of scarlet fever exceeded the number in the previous week by 1, and included 9 in Liverpool, 3 in Birmingham, and 2 both in Manchester and in Walsall. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased in the ten preceding weeks from 1423 to 1792, had further risen to 1847 on Saturday last; 221 new cases of this disease were admitted to these hospitals during last week, against 245, 234, and 231 in the three preceding weeks. The 1209 deaths from all causes in London last week included 234 which were referred to pneumonia and other diseases of the

respiratory system, against 162 and 194 in the two previous weeks, and exceeded by 25 the corrected average number in the corresponding week of the five years 1905–09. The causes of 31, or 0·7 per cent., of the deaths registered during last week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Sheffield, West Ham, Bradford, Hull, Salford, Portsmouth, and in 50 other smaller towns; the 31 uncertified causes of death in the 77 towns included 7 in Liverpool, and 2 each in Birmingham, Grimsby, Nottingham, Burnley, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 839 births and 460 deaths were registered during the week ending Oct. 29th. The annual rate of mortality in these towns, which had been equal to 12·9 and 13·0 per 1000 in the two preceding weeks, declined to 12·7 in the week under notice. During the first four weeks of the current quarter the death-rate in these eight towns averaged 13·3 per 1000, and exceeded by 0·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the eight Scotch towns last week ranged from 8·1 and 11·1 in Aberdeen and Paisley, to 14·2 in Greenock and 15·4 in Perth. The 460 deaths from all causes in the eight towns last week showed a decline of 10 from the number returned in the previous week, and included 48 which were referred to the principal epidemic diseases, against numbers declining from 83 to 47 in the four preceding weeks; of these 48 deaths, 25 resulted from diarrhœa, 7 from scarlet fever, 6 from diphtheria, and 3 from "fever," but not one either from measles or small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·3 per 1000, and corresponded with the rate from the same diseases in the 77 English towns. The deaths attributed to diarrhœa in the Scotch towns, which had declined in the four preceding weeks from 51 to 25, were again 25 last week; they included 11 in Glasgow, 4 both in Edinburgh and in Dundee, 3 in Aberdeen, and 2 in Greenock. The 7 fatal cases of scarlet fever showed an increase upon recent weekly numbers; 2 occurred both in Glasgow and in Perth. The deaths referred to diphtheria, which had been 15 and 13 in the two previous weeks, declined last week to 7, of which 3 were returned in Glasgow and 2 in Paisley. Four of the 6 fatal cases of whooping cough (an increase of 2 upon the number in the previous week) occurred in Glasgow. Of the 3 deaths referred to "fever," 2 were certified as enteric fever and 1 as cerebro-spinal meningitis; 2 were returned in Glasgow and 1 in Perth. The deaths referred to diseases of the respiratory system in the eight towns, which had been 69 and 80 in the two preceding weeks, declined again last week to 72, but exceeded by 4 the number in the corresponding week of last year. The causes of 18, or 3·9 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 569 births and 372 deaths were registered during the week ending Oct. 29th. The mean annual rate of mortality in these towns, which had been equal to 15·9, 16·9, and 17·4 per 1000 in the three preceding weeks, declined again to 16·8 in the week under notice. During the first four weeks of the current quarter the annual death-rate in these Irish towns averaged 16·8 per 1000; the mean rate during the same period did not exceed 13·0 in the 77 largest English towns and 13·3 in the eight principal Scotch towns. The annual death-rate during last week was equal to 16·6 in Dublin, 15·3 in Belfast, 17·1 in Cork, 21·6 in Londonderry, 21·9 in Limerick, and 13·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 19·5 per 1000. The 372 deaths from all causes in the 22 town districts last week showed a decline of 12 from the number in the previous week, and included 33 which were referred to the principal epidemic diseases, against 31 and 42 in the two preceding weeks; these 33 deaths were equal to an annual rate of 1·5 per 1000, the rate from the same diseases last week being 1·3 both in the 77 English towns and in the eight Scotch towns. The 33 deaths from these epidemic diseases in the Irish towns last week included 20 from diarrhœa, 3 each from measles, whooping-cough, diphtheria, and enteric fever, and 1 from scarlet fever, but not one from small-pox. The 20 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 10 in Belfast, 3 in Dublin, and 2 both in Limerick and in Clonmel. The 3 fatal cases of measles occurred in Portadown, and the 3 of diphtheria in Dublin. One death each from scarlet fever, whooping-cough, and enteric fever were also returned in Dublin; and the other two deaths from enteric fever occurred in Belfast and Cork. The deaths in the 22 towns last week included 66 which were referred to pneumonia and other diseases of the respiratory system, against 66 and 63 in the two preceding weeks. The causes of 14, or 3·8 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified deaths last week did not exceed 0·7 per cent., while in the eight Scotch towns it was equal to 3·9per cent.

Correspondence.

"Audi alteram partem."

REPORT ON THE MEASURES TAKEN AGAINST MALARIA IN THE LAHORE (MIAN MIR) CANTONMENT.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 29th you deal with this publication, which is the report of a Committee appointed by the Government of India in October, 1909, to investigate a so-called experiment which has been carried out for several years to test the practical applicability of mosquito reduction. The report is now under exhaustive analysis; but, as it may injure the cause of sanitation among those who are not acquainted with such matters, I trust that you will kindly publish the following summary of the criticisms which I have to make regarding it.

1. In paragraph 11 of the report, the object of the experiment is described as being to test the doctrine that malaria can be banished by mosquito reduction anywhere at very little cost. This absurd proposition is fixed upon me by means of quotations taken from my writings and separated from their context. What I taught was that mosquito reduction may be comparatively easy and inexpensive under very favourable circumstances; and this has proved to be the case at Ismailia, Athens, and other places.

2. In paragraph 10 the committee give the misleading impression that Mian Mir was selected for the experiment only after a careful review of other stations in India. As a matter of fact, the gentlemen who chose it had spent only a few months in India, and were directed to Mian Mir from Simla. The place proved to be an exceptionally difficult one, because it is absolutely flat, has an impervious subsoil, and becomes practically a large marsh during the rains.

3. The first operations of 1902–03 were destructively criticised by several writers, including myself.[1] But the Committee accept the soundness of the work without attempting to answer our objections.

4. More extensive measures were adopted under General Kitchener in 1904–05, by cutting off the irrigation system and filling in pits and depressions; but the Committee fail to demonstrate the essential point—namely, whether anything approaching the same thoroughness was shown during the four years from then up to the date of their visit in 1909. On the other hand, they admit that the work was incomplete; that "the military authorities dealt only with breeding places lying within the inhabited portion of the cantonment or situated fairly closely to it"; and that the officers

[1] Brit. Med. Jour., Dec. 17th, 1904, and Journal of the Royal Army Medical Corps, August, 1904, and July, 1905.

employed frequently complained of the inadequacy of the working staff, especially during the rainy (i.e., the malaria) season. They omit to give exact details, month by month and year by year, of the number of men employed and the work actually done, even during the year of their visit. They describe the large use made of military labour, but I gather that this was employed only in 1904–05. They state that an "immense amount has been done to abolish the breeding places of *Anopheles* mosquitoes," but give no figures as to the approximate degree of the sterilisation—was it a quarter, a half, or three-quarters? They did not make their visit until a month after the rains had ceased—that is, at a time when they could not possibly have observed fully for themselves the incompleteness of the measures (though even then breeding places remained). Their evidence was therefore mostly obtained from witnesses whose statements are not given *verbatim*. On the other hand, a writer who has recently visited the place says[2] that "no attempt whatever is made to prevent the establishment of breeding places within the courts of the houses," and that, "excellent as they are, the measures hitherto adopted are by no means complete, and cannot be taken as any indication of the final potentialities of anti-malarial sanitation in the locality."

5. Exact accounts of the expenditure, month by month and year by year, would have revealed the sufficiency of the operations—or, perhaps, their great insufficiency during recent years. The Committee state, however, that they cannot "give even an approximate estimate of the total cost of the operations." Yet this was supposed to be a practical experiment! Surely they might have furnished the details for the year or two preceding their visit. We learn that Rs.33,849 (about £2256) were spent in connexion with the operations of 1904–05, mostly on obliterating the irrigation system. This was a measure of doubtful utility, since an excellent irrigation system is now maintained without mosquito breeding at Ismailia, so that it is open to question whether most of this expenditure with its contingent loss of revenue (not clearly given) should be included in the bill. The reform of the surface drainage in 1905 cost Rs.40,000 (£2666), but much of this was required for ordinary sanitary purposes. All we are clearly told is that "from 1906–1907 onwards a total sum of Rs.14,594 has been spent from cantonment funds on various anti-malarial operations"—no exact details. We learn, however, from Colonel Rowan, R.A.M.C., who actually supervised the work, that "the diversion of the canal entailed a loss of revenue to the cantonment fund of about Rs.6000 yearly, and the actual filling in of the canal cuttings and the digging of wells to replace them, together with some minor sanitary improvements, cost about Rs.15,000. Since 1905 the cantonment fund has granted annually Rs.1000 for anti-malarial work."[3] Hence it appears that since 1905 the princely sum of £66 a year was allowed for the work. This, be it remembered, for a difficult country of eight square miles occupied by five regiments and a total population of 16,000 people! The sum amounts to 1 anna (about 1*d.*) per head of population and 1·7 per cent. of the annual income of the cantonment (Rs.60,000), and explains the inadequacy of the working staff complained of by the local officers (who, I should add, were not in any way to blame for it). Would any practical sanitarian admit that any disease like malaria could be eradicated from such a place for such a sum? The whole thing is not a fair test of my proposals and amounts to nothing more than a travesty of them.

6. Nevertheless, wonderful to relate, as shown by Chart I. of the report, the statistics demonstrate an extremely low malaria-rate among the troops, especially during 1904–07, when the operations were most thoroughly conducted. The Committee attempt to parry this fact by arguing that a similar decline has occurred in other stations, especially Amritsar, where they say anti-malarial operations have not been adopted "on a large scale." But they did not visit these places and give no facts to prove that no anti-malarial operations were adopted in them. I am therefore free to maintain, pending further and more reliable analysis, that the general improvement, including that at Mian Mir, was due to precisely similar partial measures carried out by the military—namely, improved drainage, partial mosquito reduction, and partial quinine prophylaxis. If they prove anything (which is doubtful), the Committee's facts prove just the opposite to their conclusions—they suggest that the trifling expenditure of 1 anna per head has been at least accompanied at Mian Mir by an exceptionally low malaria-rate.

The Committee's figures will be much criticised. They omit to describe changes among the bodies of troops and the effect of the outlying post of Fort Lahore, said to be an intensely malarious spot. Both of these factors should largely increase the malaria-rate at Mian Mir. The figures for the native population cannot be accepted without consideration of many factors not mentioned in the report. Deaths and invalidings among the troops are not given.

7. It will be agreed that for a cost of 1 anna a head no sweeping reduction of mosquitoes and malaria, such as occurred at Ismailia, could be expected, especially just after a heavy rainy season. The Committee's own efforts (lasting six days) to measure the variation by means of the most grotesquely insufficient random sampling are not capable of detailed examination in this brief review. For example, in the British Infantry Bazaar, enlarged spleen was found in 20 out of 25 children examined in 1901, and in 17 out of 24 children examined in 1909. They gravely put down (p. 31) the corresponding percentages as being 80 per cent. and 71 per cent. respectively, and then argue that this shows no great reduction. But the statistical errors are respectively 22 per cent. and 26 per cent., so that the variation may have been anything from an increase of 39 per cent. to a decrease of 65 per cent., and in the latter case the reduction would have been very great. Similarly with the other samplings, and, owing to close localisation of malaria and to the neglect of the courts of the houses just mentioned, each sample must be taken by itself. The Committee are so oblivious of these matters that they sometimes omit even to give the actuals at all. In 1904 I exposed the utter untrustworthiness of these methods and those employed for estimating the number of mosquitoes; but the committee repeat the blunders without answering my criticisms—a thing which amounts merely to an appeal *ad ignorantiam*.

8. Perhaps the most "colossal blunder" in the report is the omission of all reference to the *cost of the disease*. The fundamental economical principle of malaria reduction is that it will reduce that cost. For deaths, invaliding, medical upkeep, loss of service and of military efficiency among the 4000 soldiers at Mian Mir, malaria must cost Government directly a very large annual expenditure. Each British soldier is said to be worth £100 to Government, and each invaliding and sick furlough to England costs, I suppose, quite £50; so that Rs.100,000 a year (about £6666) would probably be a low estimate for the cost of a disease which has caused an admission-rate of 100 to 300 per cent. of strength in the station. And what must be the cost to the large civil population? I doubt whether the whole expense of the Mian Mir work from its beginning has equalled half the cost of the disease during a single year. If the disease costs Government Rs.25 a year for each soldier there, the one anna a head which has apparently been recently devoted to prevention is only 1-400th part of that cost. But all this is absolutely ignored, not only in this report, but in all the previous official reports on this subject, the pretence being that the few pence a head required for mosquito reduction are much more than can be afforded.

9. The committee's scanty account of campaigns outside India is mostly derived from occasional papers, and largely from mine. It makes no attempt to analyse either the results or the cost. Professor Osler has already adjusted their statements regarding Panama.[4] Colonel Gorgas says in his contribution to my recent book on the prevention of malaria that mosquito reduction costs $2 a head of population in Panama; but the cost of labour there is probably four or five times what it is in India, and the campaign was waged against yellow fever as well as malaria, and is much more sweeping than I ever suggested for India. The other campaigns are treated in the same manner. No attempt is made to extricate the facts for the purpose of a worthy review of the subject, and one would think that the Indian sanitary officials have never tried to ascertain these facts for themselves by special inquiry.

10. The greatest credit must be given to the military medical officers at Mian Mir for the manner in which they conducted the work with the small pittance allowed them for it. They frequently pointed out in recent years the necessity for more funds (their complaints are mentioned in the report), but none were granted. Thus, though malaria cost

[2] Journal of Tropical Medicine, May 16th, 1910.
[3] Journal of the Royal Army Medical Corps, September, 1908.
[4] THE LANCET, Oct. 8th, 1910.

Government, say, Rs.100,000 a year, the utmost that "economical administration" could allow for its prevention was, say, Rs.1000 a year. I see, however, from p. 5 of the report that the authorities did not hesitate to spend Rs.218,000 for an additional water-supply, which, however, turns out to be brackish! One can, therefore, spend 2 lacs for brackish water and 1 lac a year on account of malaria, but £66 a year is, in the sense of the committee, an inordinate expenditure for attempting to control that disease. The question arises whether the whole Indian sanitary system does not require, not reformation but revolution. When we note further that the pay of a single senior Indian official is often Rs.2000 a month, and that this will pay for 200 coolies at Rs.10 a month each, and that the permanent petrolage gang at Mian Mir seems to have fallen in 1909 to *four men and a hospital* assistant (p. 19), we shall, I think, conclude that this question is perhaps the most urgent one at present for India.

So much for Mian Mir. I think that all those who are interested in the saving of human life on a large scale would like to ask the following questions regarding the matter. Here we have a so-called experiment carried out to test a new sanitary measure proposed for the prevention of a disease which in India alone causes every year at least 1,000,000 deaths and say 100,000,000 cases of illness. Why, then, was not the experiment supported by the Imperial Government with sufficient funds (in addition to the miserable dole allotted from the cantonment fund) to ensure at least some genuine attempt at marked success? Why were not the measures of 1904–05 continued and maintained? Why were no exact records kept (or at least published) of the number of men employed, the work done, and the money spent month by month and year by year since then? Why, instead of the admittedly faulty military statistics, were not accurate measurements made by proper methods of the fluctuating amount of malaria in the place? Why is there no mention of the cost of the disease? And why were no efforts made to obtain accurate accounts of other campaigns? As, moreover, the whole affair was admittedly undertaken to test proposals attributed to me, would it not have been more courteous to have consulted me sometimes on the matter, instead of publishing under the sanction of the Government of India report after report full of omissions, hasty observations, and ill-considered conclusions which can only mislead the ignorant on a matter of life and death to millions? If I were to maintain that the whole affair was meant, not to test my proposals, but to discredit them, it would be difficult to refute me. It is easy to allow any experiment to fail if we wish it to do so.

But it is no longer possible to take the matter seriously. The reports are too clearly lacking in precision either of fact or of thought to be capable of adding anything to our knowledge of the subject. The whole point of the alleged experiment was really to compare the cost of the disease with the cost of its prevention; but the Committee have entirely ignored the former point and have admitted their inability to give "even an approximate estimate" of the latter one, and the result is therefore an absolute zero. Mian Mir proves nothing. If it *suggests* anything, it suggests that a trifling expenditure of 1 anna a head per annum was, as I have said, associated even there with a considerable fall in the malaria-rate. The Government of India have evidently been misled into the belief that mosquito reduction will ruin them and are therefore trying hard to escape from the responsibility; but the practical feasibility of the measure is now too well established by sound work elsewhere to be dismissed by such extraordinary hebetudes as are contained in these publications. I hope to discuss elsewhere the general question of malaria prevention in India.

I am, Sir, yours faithfully,

University of Liverpool, Nov. 1st, 1910. RONALD ROSS.

EFFICIENT VENTILATION.

To the Editor of THE LANCET.

SIR,—I have read with some astonishment Dr. Leonard Hill's letter in your columns on this subject and venture to offer some remarks, feeling that in its present form, and having regard to the eminent position of the writer in the physiological world, this letter is likely to do much harm. From it one would conclude that the effects of breathing impure air can be nullified by setting the air in motion. Judging from the reasons given, it would be as logical to say that if a cart-horse is overloaded the remedy is to flog him.

Some years ago I entertained 20 (mostly medical) men in a room 20 feet by 15 feet by 10 feet. It was a hot summer's evening, the external temperature being 80° F., the interior a little higher. I passed a plentiful supply of air through the room, but there was no appreciable movement of air; in spite of the high temperature my guests expressed themselves as feeling quite comfortable. I then struck off the air-supply and in a few minutes the air became oppressive. On taking the pulses and respirations I found that the former was in every instance considerably increased, in some nearly doubled in frequency. The number of respirations was also very much increased. On renewing the air-supply all the occupiers of the room experienced a refreshing feeling and their pulses and respirations returned to normal. Now in this case there was no question of any appreciable movement of air such as might act as a stimulant to the skin. I think this observation is a physiological proof of the ill-effects of impure air *per se*. I am willing to admit that the discomfort experienced by breathing foul air, especially when overheated, is partially removed by setting the air in rapid motion, but as I have said before this is only a palliative measure.

I do not think Dr. Hill can be serious in maintaining that fans placed in a room where persons are breathing foul air can be looked upon as a remedy, and this is why I feel it is important that his letter should be called in question. This method is the one caught at by many who wish to avoid their obligation to provide good ventilation. Within a mile of THE LANCET Office there are hundreds of rooms in which employees are packed without any proper provision of fresh air, and if the idea became general that the supply of a few revolving fans to throw the air about constituted efficient ventilation, this condition of things is likely to be perpetuated. I think Dr. Hill does well to contradict the very widely spread notion that CO_2 in quantities usually found in crowded rooms is deleterious. This notion has long since been proved a fallacy, but impressions such as these when widely spread and copied from book to book die hard.

Dr. Hill says: "There is no evidence worth a jot that the traces of organic material found in close air are harmful." I quite agree with him, but think this is due to the fact that our present methods are not sufficiently delicate, nor our knowledge of chemistry sufficiently advanced for us to appreciate the substances which are thrown off by the respiration of the lungs and skin. I think here a remark by Dr. M. H. Gordon comes to our rescue, where he advocates the use of our subjective feelings as a test. I personally have used no other method lately, but have simply gone on the principle of "the proof of the pudding is in the eating." Before they dogmatise on this point I should like to ask chemists and bacteriologists what is their explanation of the fact that air in a crowded apartment during waking hours has a different smell from that in a crowded dormitory? As a convenient expression I have given the name of spiral toxes to these mysterious substances. I am inclined to think that they are only slightly diffusible in air, suggesting a particulate constitution like that of smoke or fog. On approaching the door of a crowded church we appear to come suddenly on to a bank of fœtid air. The lack of diffusibility would account for the fact that the atmosphere in different parts of a room varies very much as to its stuffiness, although the motion of the diffusible gases CO_2, vapour of water and so forth, may be found uniform throughout the room. With respect to humidity I have come to the conclusion that the air-supply to an occupied room cannot be over-dried; the trouble is to keep the air in a room from becoming over-moist. In the cases where discomfort arises from the heating of the air this is due, I believe, always to errors in method of heating. The heating of air at present is usually effected by means of apparatus constructed of iron.

A year or two ago I made some experiments on this subject and found that if I heated iron above 80° F. it began to smell and produce what is usually called the flat-iron smell. When we remember that hot-water apparatus are usually employed at 180° it is obvious that the air as it enters the room must become vitiated. It is usually supposed that this smell depends upon the over-heating of organic matter in the air; this is quite fallacious. There is a very definite smell attached to every metal when heated, so much so that by practice it would be possible to identify a metal by means of its specific smell. With this fact in view I arranged the heating

apparatus for the new examination hall at Cambridge of such a capacity that it is not necessary for the heating services to be raised above 80°. This, of course, was a costly matter, but the result has fully justified the large expenditure. I have on the same principle arranged electric air heaters that contain a minimum of metal. By this arrangement vitiation of air is avoided. Control is obtained over the temperature by means of switches which call into use various sections of the apparatus. It will, I think, be a surprise to many to hear that when rooms are only occasionally used it is found cheaper to heat the air by this method than by hot water or steam.

In conclusion, I wish to emphasise the fact that for all practical purposes, if we want good ventilation, we must supply the proper amount of air. It must be properly distributed and removed, and must not be wasted by short circuiting. Efficient ventilation cannot be achieved by physiological juggling.

I am, Sir, yours faithfully,

Oct. 26th, 1910. THOS. GLOVER LYON, M.A., M.D.Camb.

THE RESEARCH DEFENCE SOCIETY AND PROPHYLAXIS AGAINST PLAGUE.

To the Editor of THE LANCET.

SIR,—In connexion with the cases of plague in Suffolk, let me say that this society has lately published an illustrated pamphlet on "Plague in India, Past and Present," by Lieutenant-Colonel Bannerman, M.D., D.Sc., director of the Bombay Bacteriological Laboratory. It gives a full account of the experiments which proved that fleas carry the plague from rats to man; it also gives a full account of Haffkine's preventive treatment, and of the many thousands of lives that have been saved by this treatment. I am sorry that the Research Defence Society cannot afford to give away this pamphlet in large quantities; but I shall be happy to send it to any of your readers who will send me seven stamps. I shall also be happy to send copies, on sale or return, to all booksellers.—I am, Sir, yours faithfully,

STEPHEN PAGET,
Honorary Secretary, Research Defence Society.

21, Ladbroke-square, London, W., Oct. 31st 1910.

A CASE OF HOMICIDAL DROWNING OF A BOY, AGED SEVEN, IN WATER 3½ INCHES DEEP.

To the Editor of THE LANCET.

SIR,—On August 19th, at about 5 o'clock in the afternoon, I was summoned to a village some three miles distant from Bicester to see a cottager's son who had been drowned, it was alleged, by his insane mother. I found the body of the boy, aged 7 years, lying in the cottage "wash-house" at the side of a zinc washing-tray (22 inches long by 18 inches wide), which contained only 3½ inches of water. Life was extinct, though the corpse was still warm. The boy was fully dressed but for his jacket and boots, and his shirt-sleeves were tucked up as if in preparation for a wash. There were no marks of violence. The skin was blanched, the lips blue, the pupils widely dilated, and some white froth had issued from both nostrils. A post-mortem examination made subsequently revealed the ordinary signs of suffocation from drowning.

The history of the case was that about 3 P.M. the woman was left alone in the house with her little boy by her grown-up daughter, who at that time took tea to her brothers in the harvest field. Shortly afterwards the next-door neighbour, an old cripple just able to hobble about with the aid of two sticks, heard three screams which he recognised as coming from the child in his neighbour's "wash-house." He took no immediate action as he suspected nothing. A few minutes later, however, he was startled by the frenzied mother, who rushed into his garden calling out that she had drowned her child. He immediately sent for the woman's husband and went across to the "wash-house," where he found the body of the boy leaning over the side of the washing tray with his face and hands in the water, and resting on the bottom. He laid him out on the floor and, having "rubbed him well and pressed his bowels once or twice" to no effect, he came to the conclusion that the boy was dead.

The case has since been before the Oxford assizes, when the mother, who was found guilty of causing the death of her child though not responsible for her actions, was ordered to be "detained during His Majesty's pleasure." The woman had, a few months before this unfortunate happening, been under treatment for melancholia. I had warned her husband of the danger of leaving her unwatched and had also advised her removal from home. It was sad that neither the old man, who was so near at hand, nor any of the others who arrived on the scene immediately afterwards knew anything about artificial respiration.

I am, Sir, yours faithfully,

ROBERT L. GLASS, M.R.C.S. Eng., L.R.C.P. Lond.

Bicester, Oxon., Oct. 25th, 1910.

THE TERRITORIAL FORCE AMBULANCE SERVICE.

To the Editor of THE LANCET.

SIR,—When I wrote in your columns of Oct. 15th that the *Hospital*, in stating that almost the sole *raison d'être* of the Order of St. John of Jerusalem was its ambulance department, overlooked the great history and traditions of the Order, I deemed myself, and still deem myself, justified in my criticism. But as the *Hospital* has now stated that it "is not unmindful or careless of the past glories of the Order, I admit misapprehension of its meaning, but not "misquotation." This, however, is a mere trifle. The important point at which every right and fair-thinking man wishes to arrive is the provision of a competent ambulance service for the Territorial Army.

What the British Red Cross Society has been able to achieve up to the present time is fully set forth in a statement issued by the society which appears in the *Morning Post* of Oct. 24th. The one thing that the inditer of that roll of achievement forgot to add was the obligation of the British Red Cross Society to the ambulance department of the Order of St. John of Jerusalem. The "*personnel* of 6222" forming the 202 voluntary aid detachments are all, or almost all, men and women trained by the St. John Ambulance Association. I received recently a copy of the last report of the county director of Devonshire, in which, after naming six institutions competent to grant certificates qualifying for admission to voluntary aid detachments, he adds, with some *naiveté*, "But, as the St. John Ambulance Association alone of these six has a branch working in this county, I recommend all to make use of it *for the present*," or words to that effect. What is the case in Devonshire is the case in all, or most, of the 44 counties in which the Red Cross Society has branches.

In an article which I recently contributed to the *National Defence Magazine* I pointed out that the British Red Cross Society had undertaken to provide two things—viz., a manual of instruction for the detachments and an inspecting staff. I note that the report in the *Morning Post* entirely ignores these two most important points; and the natural inference is that neither manual nor inspecting staff as yet exists. How are the voluntary aid detachments to be trained and maintained efficient without them? I am amused at the 170,000 documents issued from the central office "as a proof of work done," and the careful mention of the high nobility who lead the Red Cross movement. I wrote correctly three months ago for the *National Defence Magazine* that the chief part of the work of the headquarters of the Red Cross Society consisted in "a prodigious amount of memoranda and forms and the invocation of all the deities of social influence."

I am, Sir, yours faithfully,

The Athenæum, Oct. 26th, 1910. A. C. YATE.

PS.—I am perfectly aware that in this letter I only touch one or two tags of the fringe of this question. The crucial point is involved in the now much debated problem of compulsory *v.* voluntary service—the problem so ably treated by Lord Curzon at Hanley. If service in our army of defence becomes a national duty, service in its ambulance service will be equally so; and so, in my opinion, it should be.—A. C. Y.

SANITARY PROGRESS AT COPENHAGEN.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 1309.*)

The Milk-supply.

IN my previous article I said that I would deal later with the question of the milk-supply of Copenhagen. That side of the sanitary progress of the Danish capital is worth full consideration, for the authorities have arrived at something like a satisfactory solution of some difficult problems. Some thirty years ago the milk-supply of Copenhagen was bad, and its method of distribution reprehensible. The distillers sold their distillery waste or mush to the dairymen who fed their cows with it, and in exchange the distillers bought and retailed the milk, and the public had to go to a vodki shop for it. Many cows were kept in the town where they were not only fed on such unsuitable food as the distillers' mush, but were stabled in overcrowded, ill-ventilated, and dirty sheds. There were no veterinary surgeons to inspect these premises, and hardly any measures were taken to ensure either the quality or the purity of the milk. In time the authorities woke up to the risks endured by the public, and it seems that the first steps taken were directed towards preventing the addition of flour and water to the milk. If reference is made to the earliest analyses, of which a record has been kept, it will be seen on what an extensive scale milk was adulterated in this way. When the control of the milk-supply by the police began to be effective the milkmen employed two sorts of cans; the one contained pure milk, the other they declared contained skimmed milk. As such the police inspector would recognise that both articles were sound, but directly the inspection was over there was nothing to prevent the milk-dealer from mixing the skimmed milk with the pure milk and selling the mixture as genuine milk fresh from the cow. Preservatives were also used and this to an undue extent, whereby children and invalids suffered.

Increased Expenditure and Smaller Profits.

The starting point of reform was due to an interesting incident. A merchant of Copenhagen, Mr. G. Busck, noticed that one of his workmen seemed worried and inquired the cause. The workman replied that he was anxious about the health of his child. The distiller who supplied him with milk for his child had refused to do so any longer because he did not buy spirits as well as milk. Mr. Busck was so impressed by this state of affairs that he appealed to men distinguished for their public-spirited and disinterested conduct, such as Professor Panum of the University, the Court Chamberlain, M. Bille, former Ambassador at Washington, Professor Borch, and Professor Englested, and asked their help in starting a society for the purpose of giving the population an opportunity of obtaining "pure milk from healthy cows." This society was founded in the spring of 1878 with the small capital of £500 and the understanding that no one should receive more than 4 per cent. interest for his money.

From the very first the Copenhagen Milk Supply Co., as this society styled itself, grew rapidly, and its efforts were greeted with great sympathy, everyone realising the need of pure milk. But this meant a complete reform of all the processes from the cow to the house of the consumer. Every detail in the existing milk-supply had to be modified, and pressure was at once brought to bear on all the persons concerned to make them consent to the extra trouble and extra expense entailed by all these alterations. First of all, the cows had to be fed on proper food and not distillery slops, which produces the largest quantity of inferior milk. Then the cows had to be housed in a sanitary manner. When it came to milking the cows a number of precautions had to be introduced, of which the farmer had no conception. But a distinction must be made. There are two sorts of milk needed: the one that is destined to replace mother's milk for artificially fed infants and the other ordinary milk for the everyday use of adults. From the first it was recognised that the ordinary milk and the "Bornemaelk," or "milk for infants," might need different treatment.

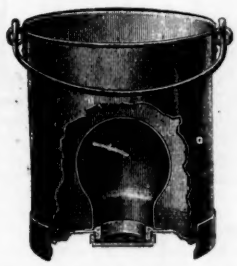
Milking the Cows in Copenhagen.

For milking a cow the ideal is the open field, where the fresh winds blow, the sun shines, and the air is pure. In winter, however, the cows are milked in their stables, but this must never be done at the time of cleaning, when there is too much dust about. Further, if the milk is for the feeding of infants the cow is taken out of the stable and passes through a compartment where it receives a final brushing before it is admitted to the special milking room, which is kept beautifully clean, well lighted, and ventilated. Here the milk-maid, wearing a spotless white dress, first wipes the cow's udder with a damp cloth. Then she washes her own hands before milking. The first two or three jets from each teat go to a separate pail and are used for farm purposes. For ordinary milk the milking may take place in the stables, but in either case the cows are shaved near the udders so as to lessen the risk of dirt falling into the milk, and the milkmaids wash their hands and the teats before milking. The cows that supply the milk for infants are examined twice every month by a veterinary surgeon, and a report is then drawn up as to the state of the stables, the nature of the food given to the cows, and whether there is sufficient ice on the premises. The milk also is only taken from cows that have been submitted to the tuberculin test. The first step, therefore, is to obtain milk that is thoroughly good and to prevent its contamination during the milking process. No amount of boiling or pasteurising will make good milk of bad milk.

Preservation of the Milk.

But having obtained good sound milk from a healthy cow, there come the problems of its preservation and conveyance from the farm to the consumer. The system of preservation employed is based on extreme cleanliness, and on the use of ice to lower the temperature. For the infants' milk-supply not only, as already described, are extra precautions taken in milking, but a special pail is used. Fixed to the bottom of this pail is placed a pear-shaped copper receptacle (Fig. 1).

FIG. 1.



Milk pail with pear-shaped receptacle to contain cooling mixture.

On turning the pail upside down this receptacle can be opened and filled with a mixture of one part of common salt with three parts of ice or snow. The lid is then screwed on, and we have within the pail a large cooling surface. By using one of these pails the temperature of the milk is at once reduced to 70° F., whereas in an ordinary pail the temperature of the newly-drawn milk exceeds 80°. The cooler the temperature, the less is the development of organic life favoured. Experiments have been made. From two teats of a cow six quarts of milk were milked in one of these refrigerator pails. From the other two teats of the same cow six more quarts were milked into an ordinary pail. Then the milk was placed side by side in bottles in a room where the temperature was 60°. The milk from the ordinary pail was the first to turn sour and the other remained pure a much longer time. This trial was repeated, but this time the teats were carefully washed. Though these precautions were taken in regard to both pails, the milk from the ordinary pail went bad after 82 hours and that from the refrigerating pail after 144 hours. Then the same experiment was made without washing the udders but drawing the first jets of milk into a separate pail. The milk from the ordinary pail kept fresh for 52 hours and that from the cooled pail 96 hours. On repeating this same experiment, but omitting to draw off the first few jets of milk into a separate pail and keeping them away from the bulk of the milk, that which was gathered in the ordinary pail showed signs of deterioration after 40 hours and that from the refrigerated pail remained sound for 70 hours.

Discipline by Money.

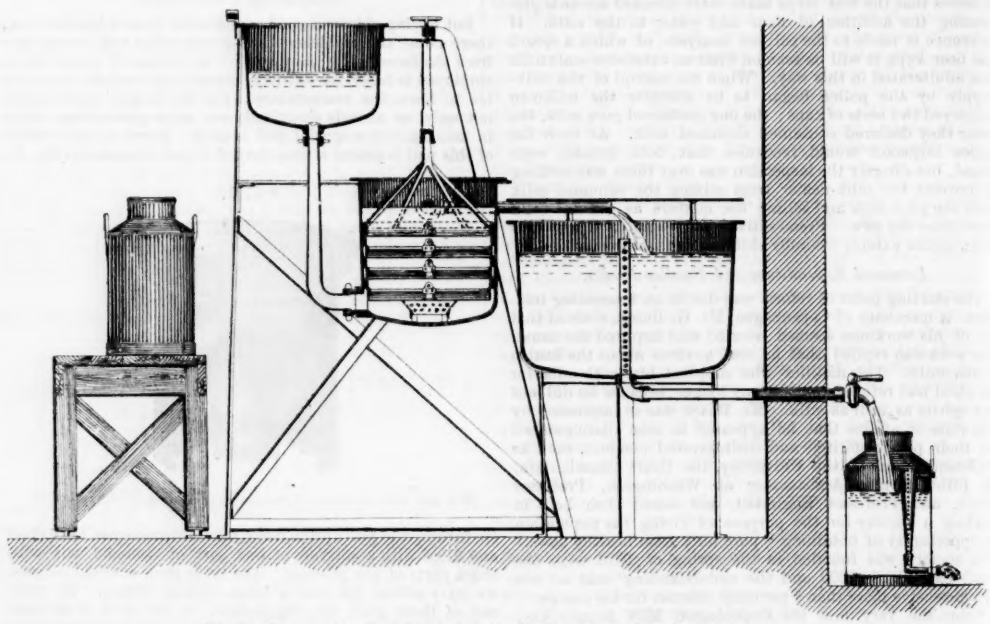
All this is of scientific interest, but how are rough-and-ready farm hands to be taught the importance of these aseptic principles? Where also is the authority to enforce such measures? In the absence of laws and of police the only force that could be brought to bear was the power of money. Rules and a complete scheme of dairy-farming were presented to the more intelligent farmers. If they chose to incur the trouble and expense of keeping cows and collecting the milk in the manner and with the precautions indicated, then the Copenhagen Milk Supply Co. would buy this milk at a much higher price than its ordinary market value. But this did not suffice. Many farmers accepted these terms, and were doubtless quite desirous of carrying out all the stipulations, but why should the farm hands and dairymaids give themselves all this extra trouble? They were not interested in the sale of milk. Thereupon the Milk Supply Co. determined not only to pay the farmers more for their milk, but it decided to give a present or bonus of 10 to 20 kroner (11*s.* to 22*s.*) per month to the men who have charge of the cows and whose business it is to keep them and their stables thoroughly clean. The milkmaids also receive a bonus of half the amount, and inspectors constantly go round to see if these bonuses have been earned, and that the farmer on his side is carrying out his bargain. Instant dismissal of the workpeople or cessation of business with the farmer is the penalty of any infraction of the rules. In the absence of laws on such matters there can be no other method. To pay better than the market price is the one and only force private enterprise can employ.

There is yet another and very grave matter in regard to the farm or source of supply. Illness may occur and the patient may contaminate the milk. To meet this contingency the company desires that when illness is suspected no milk should be forwarded till after medical advice has been obtained. Any loss that this may entail on the farmer will be refunded by the company. Thus all fear of losing money through taking proper precautions is removed. If the medical adviser thinks the illness is not serious and there is no danger of milk contamination, then the business relations are resumed as before. If, on the contrary, there is danger, then the State takes the matter in hand. The company, however, has just stepped in to fill that important gap in the chain between the mere suspicion of illness and the actual intervention of the public health authorities.

The Milk at the Town Depôt.

Such are the measures taken to secure a supply of good and pure milk, but there yet remains the very great difficulty of conveying this milk from the farm to the town depôt, and thence to each individual consumer. How this is done I was able to see by passing a portion of the night at the great depôt, situated in the outskirts of Copenhagen. Here a branch line enables the milk trains to reach the doors of the depôt. The milk-cans are provided by the company: square cans of 50 litre capacity for ordinary milk and round cans of 40 litre capacity for milk for infants. These are sealed down at the farm and bear the name of the sender. In summer the railway vans are provided with ice to keep the milk cool. On the railway platform hand trucks receive the milk cans, and these are wheeled into the depôt. A clerk notes whence each can comes. It is then weighed. The can is now opened. A woman introduces a lactometer; at the same time a sample is taken, partly for the laboratory and partly for the milk-tasters. These latter are women, and they have to taste 150 samples a day. They can easily detect if there is an unusual flavour, in which case the can is set aside for analysis and more elaborate examination. The temperature of the milk is also taken, and should it prove not cool enough the persons who have supplied the milk are warned. If, as is usually the case, the milk is found to be good, it is then poured out of the can over a sieve into a vat or tank. From this receptacle the milk is pumped up over what is known as a Lawrence cooler. This consists of a pipe twisted round to form a cone and the milk pumped over the top and narrow end of the cone falls over it in a thin sheet. As the cone contains iced water this cools the milk. The water in the cooler travels backwards and forwards from a large ice-box. The milk thus cooled is now filtered. The filtering apparatus consists of two receptacles, one several feet higher than the other (Fig. 2). The second and lower receptacle is filled with fine gravel. There are wire gauze partitions to prevent clogging, and at the top there are three or four layers of very fine cotton tissues, such as muslin or cheese cloths, that act as further filtering or clarifying material. The object, of course, is not to filter in the laboratory sense of the word, but to extract any grit, hair, dust, or other foreign matter that may be in the milk; and it is wonderful what a large quantity of foreign substances does get mixed with milk. A pipe unites the two

FIG. 2.



The filtering apparatus for milk employed by the Copenhagen Milk Supply Company.

receptacles, and the milk, by the force of its own weight, travels up through the filter and out by the top of the lower receptacle. It is then received in cans or bottles, as the case may be, and is ready for delivery. The boxes to hold the bottles are provided with ice; the milk is never allowed to get warm.

How to Draw Milk from a Can.

The milk is delivered direct to the consumer; it is not entrusted to the tender mercies of a retail dealer, by whom, if it is not adulterated and wilfully tampered with, it is, nevertheless, through ignorance or carelessness, likely to be contaminated or befouled. It has been thought preferable to build large stables, purchase 80 horses, and create a perfect arsenal of carts, so that the milk might be delivered in an absolutely pure condition to the consumer himself. These carts are closed on all sides and in themselves represent quite a revolution in the old methods of the trade. Inside are large milk-cans with taps coming through small apertures in the side of the cart. Here there are one or two small apertures which are only opened when milk is required. The measures for the milk have handles so constructed that they must be put by in such a manner that dust cannot fall inside. But the most thoughtful contrivance is that which is put within the milk-can itself. As with milk the cream gathers on the top, it follows that the milk in the higher part of a big can would be of better quality than that at the bottom. Therefore the milk should be drawn from all parts of the can and not merely from the bottom, where the tap is placed. To this end a perforated tube going from the top of the can to the tap might draw off the milk from all parts of the can. But even this would not suffice, for the weight of the milk creates a greater pressure at the bottom of the can. Therefore a pipe has been devised which is smaller at the bottom and has smaller holes. But the pipe widens and the holes are larger and larger as it gets nearer the top of the can. Thus the milk at the top can run in more easily. This compensates the pressure at the bottom, and consequently the customer gets his fair share of top milk. This is shown in the illustration.

Cleanliness and Ice as the only Preservatives.

In regard to the extreme cleanliness observed, I need not describe in great detail the mechanical means employed to clean, scour, and sterilise all the utensils. An important point is to note that where milk is concerned plain cold water must first be used so as to prevent curdling and to get the traces of milk removed. It is not till this has been done that hot water and soda can best be brought into action. In the big cans machine brushes scrub with 600 revolutions in a minute. For cleaning bottles the brush that goes inside makes 1500 revolutions in a minute. The inside of the metallic cans is very smooth, to prevent anything adhering and to facilitate the process of cleaning. After this is over the cans are passed through a 1 per cent. solution of lime-water, then are flushed out with plain water, and finally superheated steam is discharged in each can. This has a sterilising effect, while the heat causes the cans to dry quickly, and there is less chance of rust. The cans are then ready to be used again.

As for the premises where all this is done, they are spacious and airy. They consist of only one lofty floor. The ground is asphalted over. All the men and women employed have to wear white overalls and wooden clogs, as the floor is wet with the washing that is going on all the time. The walls are whitewashed throughout, and no dust or dirt is allowed to accumulate. The ice-house attached to these premises holds 3000 tons of ice, and this figure gives some idea of the important part ice plays in the transport and preservation of milk. The bottles that contain the special milk for infants are placed in ice up to the very last moment. If the milk is kept cool and perfectly clean it will last long enough to be brought to the consumer, who may then drink it in its natural condition, unaltered by the addition of chemicals or by any process of pasteurising, of boiling, or of warming.

The Financial Problem.

The most crucial question is undoubtedly that of the price of the milk. If the milk is to be rendered very expensive by taking all these precautions then the reform will defeat its own ends. But the Copenhagen Milk Supply Co. has effected a great economy by limiting the interest on the capital invested to 4 per cent. and by eliminating the small retailer altogether. It has three milk depôts of its own for the retail sale of milk situated in convenient districts of the town and a small army of carts taking the milk up and down the streets. On these carts is written in big letters what is the price of the milk—namely, 16 öre, or 2¼*d.* a quart, for unaltered pure milk. The special milk for infant feeding is expensive, as it is rather more than 3*d.* the quart, but it is the cheapest form of medicine. Still, the extreme poor cannot be expected to pay this price, and such public or private charities as exist should help to place this more expensive milk at the disposal of poor mothers who cannot suckle their own infants. Altogether the Copenhagen Milk Supply Co. now sell something like 9,000,000 litres of milk in the course of the year. This represents only a portion of the milk-supply of the town, but it constitutes a sufficiently severe competition with the other milk dealers to have had a most wholesome action on the entire trade. It has prevented the raising of the price of milk. Though the price of commodities has often increased, that of milk has remained stationary for the last 32 years. On the other hand, the standard of cleanliness observed and the precautions taken have been radically changed and improved. The other great milk concerns are not actuated by the same philanthropic reasons which constitute the inspiring motive of the Copenhagen Milk Supply Co., but they have all had to imitate, at least to some extent, what was done. Thus there has been an all-round improvement affecting the price and the purity of the entire milk-supply of Copenhagen.

THE RECENT ARMY MANŒUVRES IN THE SOUTH OF ENGLAND.

(BY A SPECIAL CORRESPONDENT.)

(*Concluded from p. 1310.*)

II.

Medical Services.

THE organisation of the medical services was briefly as follows. Cavalry brigade and infantry brigade reception hospitals were organised for the temporary treatment and disposal of the sick. Divisional troops sent their sick to the nearest reception hospital. All medical officers were mounted—horses, saddlery, picketing gear, horse blankets, &c., being provided for captains and lieutenants in medical charge of mounted troops by the officers commanding the units to which they were attached. Medical officers in charge of dismounted units were provided under arrangements made by their brigade commanders. Field medical officers had to arrange to provide themselves with suitable chargers.

Medical officers in charge of troops were provided under brigade arrangements with a regimental non-commissioned officer acquainted with medical inspection duties, and tents, camp equipment, and transport were similarly provided for these officers. The administrative medical officers and sanitary officers were provided with bâtmen under arrangements made by the general officers commanding divisions; bâtmen for the medical officers attached to troops were provided by the brigades concerned. The Royal Army Medical Corps *personnel* and transport with headquarters and brigades were accommodated, rationed, foraged, &c., by the units to which they were attached, the reception hospitals being treated as independent units and not attached to any other unit for these purposes. Stretcher-bearers (with armlets) and stretchers were provided by officers commanding units in accordance with the following scale, and were placed at the disposal of the medical officers in charge of the troops, who were directed to take opportunities, as far as possible, to instruct the stretcher-bearers in their duties.

	Stretcher-bearers.	Stretchers.
Regiment of Cavalry	6	2
Battery of Artillery...	2	1
Battalion of Infantry	8	4

Medical Inspection of Sick.

The sick were seen each morning in time to admit of the cases being disposed of before the troops moved out of camp, and also each evening on arrival in camp. The sick of units which had no medical officers attended at the nearest medical inspection tent.

Disposal of Sick.

All sick men who could not be treated with their units (trivial cases) were sent to the reception hospital. Cases not likely to require more than 24 hours' treatment were detained in the reception hospital. Cases requiring more than 24 hours' treatment were disposed of as follows:—(*a*) If likely to be fit for duty before the termination of manœuvres they were sent to the nearest convenient military hospital at which accommodation was available, due regard being paid to the probable movements of the troops. (*b*) If not likely to be fit for duty before the termination of the manœuvres, the sick were sent direct to the military hospitals at their stations, if fit for the journey. Serious cases, unfit for the journey, were sent to the nearest military hospital in the direction of their stations, or if considered expedient to any military or civil hospital more conveniently situated. Detailed instructions, with a list of these hospitals, were furnished by the Deputy Director of Medical Services to the administrative medical officers of the various divisions. In all cases it was ordered that it should be ascertained by telegram beforehand whether accommodation was available. Sick reports were sent with all men reporting sick, and their kits, arms, rations, and blankets were directed to be sent with them to the reception hospitals. The reception hospitals were evacuated each day under the orders of the administrative medical officer of the division concerned. It was arranged that in the event of any cases of infectious disease occurring they should be transferred to the nearest civil infectious hospital, if no convenient military hospital was at hand. All railway arrangements for the evacuation of sick were made by the officers in charge of the reception hospitals under the orders of their respective generals. A railway ambulance coach to be attached to ordinary passenger trains was kept available for the conveyance of serious cases from the manœuvre area at convenient central railway stations, the names of which were notified by the Deputy Director of Medical Services. A medical officer for each division with two non-commissioned officers and two privates of the Royal Army Medical Corps and equipment (medical panniers, companions, haversacks, and water-bottles) were stationed to superintend the arrangements for the entraining of the sick on their transfer to military hospitals, the necessary arrangements for accommodation being made by the divisional authorities.

Ambulance Wagons.

Administrative medical officers of divisions arranged for the distribution of the ambulance wagons of the reception hospitals amongst the units on the line of march and in the field. On the line of march an ambulance wagon was detailed to proceed in rear of the second line of transport of each division. A motor ambulance wagon was placed at the disposal of the Deputy Director of Medical Services for the transfer of serious cases to hospital.

Miscellaneous Instructions.

Hawkers were not allowed to accompany the troops, who were forbidden to deal with them on the march or in camp. Special attention was directed to be paid to the care of the feet and the fitting of boots and socks. The regimental chiropodists were directed to attend at the medical inspection tents with the men of their respective units requiring treatment by medical officers for sore feet. It was noted that men of the Territorial Force (who are not supplied with the regulation pattern boots and who supply their own boots) in many instances wore pointed-toed boots, the result being that their marching powers were much impaired by sore feet and blisters.

Field Ambulances.

The Second Division, which mobilised at Aldershot up to its full war establishment, was complete with three field ambulances. The *personnel* was brought up to full war strength by calling out the army reservists and special reservists of the Royal Army Medical Corps. Many of these men had originally served in infantry regiments before joining the reserve, and, while their marching powers were good, it was thought that they were wanting in their knowledge of corps work. The non-commissioned officers detailed for the field ambulances might also have been better selected, and their powers of enforcing discipline were not as satisfactory as could be desired when one had to consider the class of men they had under their orders. Another remarkable feature of the medical mobilisation was the fact that while the infantry of the line were all provided with the new web equipment, the Royal Army Medical Corps were still wearing the obsolete forms of equipment whereby the greatcoat is carried behind strapped on the belt, causing severe abdominal strain and fatigue. The men felt themselves very much handicapped by this, and it is hoped that the medical authorities at the War Office will adopt the new web equipment which has proved so satisfactory, from a physical efficiency point of view, amongst the infantry. It seems peculiar that the medical branch of the army should recommend this new equipment for all other infantry units and omit its adoption in its own branch. The field ambulances worked well on their trial as far as their equipment went, but there was a marked tendency for the equipment of the different sections to get mixed up in camp.

Reservists.

Two classes of reservists were mobilised with the Second Aldershot Division, army reservists and special reservists. It was noted that many of the former were men of more or less advanced life and unfit for the arduous daily marching; many more suffered from advanced dental caries. Amongst the special reservists the opposite extreme was notable; many of these were mere boys and quite physically unfit to march the distances covered by the troops. In one column alone some 250 reservists were reported as having been so incapacitated by the marching that it was found necessary to transfer them to the Base Hospital at Aldershot. Such an occurrence as this becomes all the more grave when it is considered that the climatic and other conditions under which the army manœuvres occurred were so favourable. The weather was all that could be desired and the marches were not excessively long, the rations were generous, and tents were used almost every night. What would have been the experience under adverse conditions?

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Health of Birmingham.

THE report of the medical officer of health for the third quarter of the year shows that there were 3667 births registered during that period, as compared with 3814 in the previous quarter and 3724 in the third quarter of 1909. The births were equal to a rate of 25·8 per 1000, which was considerably below that of the third quarter in any previous year. The mean birth-rate for the third quarter in the ten preceding years was 30·3 per 1000. There were 1763 deaths, equal to a rate of 11·2 per 1000, which was considerably lower than in any quarter in any previous year. The mean death-rate for this quarter in the preceding ten years was 16·4 per 1000. The low mortality was largely due to the diminished number of deaths from summer diarrhœa. All the other infectious diseases, as well as phthisis and bronchitis and pneumonia, also showed a reduced mortality. The infant mortality was at the rate of 107 per 1000 births, as compared with 145 at the same time last year and an average of 203 in the third quarter of the ten preceding years. This infant mortality rate was quite the lowest ever recorded for this quarter.

Orthopædic and Spinal Hospital.

The annual report gives the following record of work during the year: Attendances, 15,019; new cases, 1478; operations, 665; in-patients, 382; country patients, 637. The number of operations had increased by 230 in 12 months—that is an increase of 50 per cent. The medical committee again emphasises the hygienic deficiencies of the present building. The hospital, although one of the oldest established in Birmingham and although requiring the most modern and up-to-date means for the surgical treatment of patients, remains housed in a building which can recommend itself to no one for the purpose for which it exists. This hospital, and no other in the city, devotes a large amount of its income to the supply of instruments and apparatus for the relief of lameness and general deformities. The financial statement showed: Subscriptions, £1124; donations, £147; supernumerary tickets, £228; hospital collections, £388; dividends and interest, £137. The expenditure, including

£653 for instruments supplied to patients, was £3124, being £1032 in excess of the income.

Stratford-on-Avon Hospital.

The annual report presented at the eighty-eighth annual meeting on Oct. 10th showed that the year closed with a credit balance of £77, the expenditure being £1844 as compared with £1808 last year. During the year 276 in-patients were treated, of whom 73 were medical, with a mortality of 8; 188 surgical, with a mortality of 6; and 15 ophthalmic. There were 153 operations under anæsthetics. A discussion arose on a proposal to appropriate a sum of £500 from the capital fund for building, alterations, and extensions. Several members objected to the capital being interfered with. The total cost of the alterations was given as £1600, and Mr. W. B. Gibbins generously promised £1000 if the work was started at once.

Birmingham Hospital Saturday Fund.

The total amount of this year's collections is £20,167 17*s.* 11*d.*, an increase of £478 10*s.* 7*d.* over last year. The President, Alderman Sir Hallewell Rogers, at a recent meeting made the interesting announcement that the Fund was shortly to embark on the management and maintenance of a consumptive sanatorium. Plans were being considered for a building to contain 50 patients to be erected on Romsley Hill, about eight miles from Birmingham. The site is an ideal one, well wooded, and 800 feet above sea level.

St. Luke's Guild.

At the invitation of the Dean of Worcester (Dr. Moore Ede) the members of the Birmingham and Midland Ward of the Guild of St. Luke held their festival on Oct. 18th at Worcester for the first time, previous visits having been paid to Birmingham, Coventry, Warwick, and Leamington. Dr. H. Cameron Kidd, of Bromsgrove, the master of the ward, presided at the annual meeting at the Deanery. Subsequently the members in their academical robes attended service at the Cathedral, the sermon being preached by the Dean.

Nov. 1st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Presentation Portraits to Sir James and Lady Barr; Complimentary Banquet.

Sir James Barr and Lady Barr were presented with their portraits painted in oils by Mr. Hall Neale at a banquet given in their honour by the subscribers to the Portraits Fund at the Adelphi Hotel on Oct. 25th. The committee was comprised entirely of members of the medical profession, Mr. F. T. Paul being the chairman, Mr. T. H. Bickerton honorary treasurer, and Dr. W. Blair Bell and Dr. R. J. M. Buchanan honorary secretaries. The function was a conspicuous success and was attended by 155 ladies and gentlemen. Mr. Paul, in an eloquent speech, bore personal testimony to the many striking qualities of Sir James Barr. He described him not only as a most scientific and resourceful physician and a valuable colleague, but also as a staunch friend and charming companion. He referred to various undertakings, civic and professional, that he had carried to a successful issue; especially emphasising the enormous amount of work he had done in connexion with the British Medical Association. In a sketch of his career, Mr. Paul alluded to Sir James Barr's numerous publications, and called special attention to his treatment of typhoid fever, and to his researches into the pathology of the circulatory system. He paid a tribute to Sir James Barr's generosity to the younger members of his profession, and to the encouragement he had given by his sympathy and support to scientific research. The chairman, in a happy vein, referred to the devoted help Sir James Barr had received from Lady Barr, who was deservedly beloved by all who knew her. He had the greatest pleasure in proposing the toast of "Sir James and Lady Barr." The toast was seconded by Sir Rubert Boyce, who expressed his admiration of Sir James Barr's courage and strength of mind in advocating many righteous causes and not fearing to hit out, even to his own detriment. Sir James Barr responded to the toast with much feeling, giving a brief account of his career which was full of interesting episodes. He spoke of the great kindness he had always received from members of the medical profession, and of the share Lady Barr had had in any success he might have attained. The toast of "The Ladies," proposed by Dr. William Permewan in a speech very happily phrased, was responded to by Mrs. F. T. Paul. The toasts of "The Artist" and "The Chairman" were also heartily received. Sir James and Lady Barr subsequently held an informal reception, which was attended by all who had been present at the banquet.

St. Luke's Day Medical Service.

The annual medical service (St. Luke's Day) was held at St. Luke's Church on Sunday, Oct. 23rd. The preacher was Dr. Paget, the Bishop of Oxford. There was a large attendance of members of the profession residing in Liverpool and environs. Academic costume was generally worn. The service was also attended by a goodly muster of the Royal Army Medical Corps (Territorials). The gallery was well filled by nurses from the various city hospitals. Several lady members of the profession were also present in academic costume. The collection will, as usual, be devoted to the British Medical Benevolent Fund.

Health Notes.

Dr. E. W. Hope, medical officer of health, speaking on Oct. 20th at the annual dinner of the Liverpool Cowkeepers' Association, said that of the thousands of samples of milk taken in the city last year not one was found to be affected with tuberculosis.—Alderman Menlove, the chairman of the health committee, stated on Oct. 20th that, judged by the statistics of the months which had already passed, the present year promised to return the lowest death-rate on record for Liverpool.

Death of the Medical Officer of Health of Birkdale.

Mr. Albert Victor Wheeler, of Scarisbrick New-road, Southport, for many years the medical officer of health of Birkdale, died at his residence on Oct. 21st. Mr. Wheeler, who was appointed medical officer of health in 1887, was 61 years of age.

Nov. 1st.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Society of Medical Officers of Health.

AT a meeting of the South Wales and West of England branch of the Society of Medical Officers of Health held at Cardiff on Oct. 28th, Dr. D. J. Morgan (Swansea), in his presidential address, dealt with the subject of popular education on matters of hygiene. He maintained that the duty of a medical officer of health should consist not merely in carrying out the requirements of the law, but should have for one of its main objects the real education of the general public in all matters relating to health. The process of education should apply first of all to the Board of Education itself, secondly to the various examining bodies of the country, thirdly to the school teachers, fourthly to the school children, fifthly to the children's parents, and lastly to the general public. Referring to the medical inspection of school children, he deplored that many teachers had failed to realise the importance of a sound, healthy body in a young child. Such teachers must be taught that the first essential in life is a healthy body, and that children who are unhealthy are not merely a source of danger to other children but are in such a condition that they are unable to absorb knowledge to the best advantage. The children should be taught what health really meant in order that they might be able to bear the strain of later life.—The action of the Radnor county council in seeking to appoint a county medical officer of health and school medical officer at a combined salary, to include travelling expenses, of £350 per annum was adversely criticised, and a resolution was unanimously passed disapproving of the inadequacy of the salary offered.

Swansea and Merthyr Joint Asylum.

After negotiations which have been spread over a long period an agreement has at length been arrived at to provide an asylum for the boroughs of Swansea and Merthyr Tydvil. It is to be situated in or near to Swansea, and the initial cost of the land, buildings, and furnishing is to be defrayed

as to two-thirds by the corporation of Swansea and as to one-third by the corporation of Merthyr Tydvil. The management of the institution is to be in the hands of a committee of 25 persons, of whom 13 will represent Swansea and 12 Merthyr Tydvil. The population of Swansea at the last census was 94,514 and of Merthyr Tydvil 69,227.

Security of Tenure of Medical Officers of Health.

The medical officer of health of Newport (Mon.), Dr. J. Howard-Jones, has hitherto held office for a limited period, but at a recent meeting of the local authority he was elected without reference to time and can now only be called upon to resign his office with the consent of the Local Government Board. The medical officers of health of Cardiff city, the Rhondda and Aberdare urban districts, and the Llandaff and Dinas Powis rural district hold office on the same terms.

Abergavenny Workhouse.

The architect of the Local Government Board has given an estimate for the cost of providing a new workhouse at Abergavenny for about 200 inmates and cottage homes for 20 children, but the guardians take no steps in the matter. The Local Government Board has now sent an ultimatum to the guardians that if no action is taken the only alternative appears to be to dissolve the board of guardians.

Chalets for Consumptives at Swansea.

Joint action has been taken by the Swansea corporation and board of guardians for the treatment of consumptive patients. It is proposed to erect on land in the vicinity of the workhouse twelve chalets at a cost of £250. The cost of these buildings and of administering the institution will be divided equally between the corporation and the guardians. The patients admitted for treatment will not necessarily be paupers.

Swansea Slaughter-house.

It is so constantly asserted by the opponents of public slaughter-houses that the latter can only be carried on with the assistance of the rates that it is of interest to learn from the annual report of the Swansea public auditors that the net profit on the slaughter-house in that borough for the year ending March 31st, 1910, after providing one year's interest on stock and sinking fund, amounted to £564, an increase of £317 upon the profits of the previous year.

Nov. 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh University: Rectorial Address.

THE Right Hon. George Wyndham, M.P., Lord Rector of Edinburgh University, delivered his rectorial address to the students on Friday, Oct. 28th, in the McEwan Hall. The chair was occupied by the Lord Chancellor of the University, the Right Hon. A. J. Balfour, M.P., and he was accompanied to the platform by an unusually large and representative gathering, while the hall was well filled. The Lord Rector took as the theme of his address "Romance: What it Meant and When it First Came into the Literature of Europe." The address was erudite, scholarly, and closely reasoned, and was listened to with much attention and interest by the bulk of the audience, but some of the finest passages were marred, if not lost, by recurring noisy demonstrations from the top gallery. After the address Mr. Wyndham inspected the Officers' Training Corps in the quadrangle of the University.

Edinburgh Students' Union.

The Edinburgh Students' Union has attained its majority, having been in existence for 21 years. This interesting fact was honoured by the presence of the Lord Chancellor of the University, the Lord Rector of the University, Sir William Turner, the Principal, Sir R. Finlay, and others at a luncheon in the Union after the Lord Rector had delivered his address. The toast of "The Union" was proposed by the Lord Chancellor, who spoke of the position the Union had attained and of its value in the life of the student. In the evening there was a torchlight procession.

St. Andrew's Ambulance Association.

The Earl of Dalkeith, President, occupied the chair last week at the annual general meeting of the St. Andrew's Ambulance Association, which was held in the Merchants' House, Glasgow. The annual report showed that during the year 7947 calls were made on the wagons of the association, and the total number of patients conveyed since the formation of the association is now 107,897. In Glasgow alone the calls numbered 5077, which, leaving Sundays out of the calculation, gives an average of 16·22 turns-out daily. Of these calls 2428 were to accidents and 2649 to cases of illness. The association during the year conducted and examined 572 classes in "first-aid to the injured," and 55 in "home nursing and hygiene." Certificates of proficiency were issued as follows: First-aid, 5936; nursing, 793; re-examination vouchers, 429; junior first-aid, 444; total, 7602; making a grand total since the formation of the society of 95,524. At the meeting, Sir George T. Beatson moved that a Provisional Order be applied for by the association to enable it to transfer the Red Cross Fund held by it to the Scottish branch, British Red Cross Society, with the exception of a sum of £3500, part of the said fund, which is to be retained by the association to enable it to carry out obligations already undertaken, including those under the sanction of the War Office.

Aberdeen City Hospital: Inauguration of Extensions.

The extensions recently completed in connexion with the Aberdeen City Hospital were formally opened on Oct. 26th by Lord Provost Wilson in the presence of a large number of medical men and others from the city and district. Councillor Kendall Burnett, convener of the public health committee, presided, and in his introductory remarks stated it was now 33 years since the original hospital erected on the same site was opened. Previous to that time accommodation had been found for small-pox in a disused match factory at Mounthooly, which the town council had been forced to secure, owing to the Royal Infirmary refusing to take the small-pox cases. The site for the present hospital was acquired in 1873 at a cost of £2500 from the University of Aberdeen. The hospital as originally erected cost, exclusive of site, about £12,000. It had accommodation for 50 patients. In 1887, owing to a threatened epidemic of small-pox, a wooden pavilion was hastily run up at a cost of about £800. This pavilion was still in good condition. In 1893 large extensions were undertaken. Two of the four original pavilions were doubled in size; the accommodation for nurses and the kitchen accommodation were also enlarged. These additions were completed in 1900, and cost about £28,000. They raised the accommodation for patients to 126, with an allowance of 2000 cubic feet for each bed. Owing to the rapid growth of the city, necessity rose of making accommodation for a large number of cases formerly treated in the Royal Infirmary; and owing to a more extensive use of the city hospital for the isolation of zymotic cases it was felt two years ago that a further extension should be made. It was this extension, the cost of which was expected to amount to nearly £16,000, which was being opened. The total number of beds for patients would now be 184. This would provide about one bed for every 1000 of the population. Edinburgh, with a population about twice that of Aberdeen, had a fever hospital with 652 beds, while Glasgow, with a population of 850,000, had fever hospital accommodation for 1100 patients, exclusive of a proposed new small-pox hospital intended to accommodate from 200 to 300 patients. It could not, therefore, be said that Aberdeen was even now extravagantly provided with fever hospital accommodation. During the ten years preceding the year 1908 the average number of cases treated in the hospital was 733. In 1908 it had risen to 1346, and in 1909 it was 1213. The mortality among scarlet fever cases in the Aberdeen City Hospital had been for many years one of the lowest of any large hospital in the kingdom. It was only about 1 per cent. for the last two years. Provision had been made for the suitable treatment of a few phthisical cases. This provision for open-air treatment would be serviceable in the treatment of other zymotics, for example, typhus fever. The annual expenditure at the city hospital amounted in the last financial year to slightly over £8000, exclusive of salaries. In Glasgow the total expenditure on their fever hospitals was over £95,000, and in Edinburgh it was fully £45,000. In proportion to population, the expenditure on fever hospitals in Glasgow and Edinburgh was last year about twice that of Aberdeen. The Lord Provost, in declaring the buildings open, referred to the good done by the preventive work carried on by the public health committee. The party afterwards inspected the various buildings, and expressed

admiration at the thoroughly complete manner in which they were equipped.

Dundee Town Council and Fever Hospital Enlargement.

A meeting of the Dundee town council was held on Oct. 27th to consider the state of affairs as regards infectious disease, and particularly scarlet fever and diphtheria, in the city as disclosed by Dr. C. Templeman, the medical officer, in his report. The erection of a temporary building to cost £2100 was recommended by the public health committee, and the council in committee first discussed the matter and subsequently made it a town council decision. In the course of discussion it transpired that the number of cases treated at King's Cross had grown from 171 three years ago to 657 this year. Questioned as to the council's liability if they refused to take in scarlet fever cases, the town clerk stated that the law was not clearly defined in the matter. There were no decided cases, but the Local Government Board was advised by Crown counsel that local authorities were bound to provide hospital accommodation for infectious cases, or at least for all infectious cases where proper isolation could not be got at home. In reply to other questions, the medical officer stated that he did not think he would be justified in refusing a case recommended by a medical man, and that it would be impracticable for the corporation to treat cases in their own homes. It was ultimately resolved to erect a temporary building at a cost of £2100, and that power should be given to the committee to proceed with the work.

The Premier in Aberdeen: Rectorial Address.

The Right Hon. H. H. Asquith, as Rector of Aberdeen University, visited Aberdeen on Oct. 24th and 25th. On the 24th he was entertained by the Senatus to dinner, and thereafter viewed the torchlight procession from the windows of the hotel. On the 25th he delivered his rectorial address in the Mitchell Hall of Marischal College, referring in the course of it to the growing tendency to specialism, which had become a marked feature of university work, both in Scotland and in England, during the past 50 or 60 years. This was to the good in so far as it tended to promote erudition and accuracy, at the expense of that which was merely superficial and smart; but the advantage was purchased at an excessive price if it were gained by the sacrifice of width of range and catholicity of interest. A university which was content to perform the office of a factory of specialists was losing sight of some of its highest functions. The man whom the university ought to turn out as its finished product at the end of his university course ought to be in Bacon's own phrase "a full man." Riotous proceedings on the part of the students took place afterwards, in the course of which the carriage intended to convey Mr. Asquith from the University to the residence of the Principal was completely wrecked.

Royal Aberdeen Hospital for Sick Children: New Building Scheme.

As already stated, it has been decided to erect a memorial hospital to His late Majesty King Edward VII., and a special appeal has been issued on this behalf. The Royal Aberdeen Hospital for Sick Children has now been working for 34 years. From a small beginning in the autumn of 1877, with 14 beds, the hospital has so grown in usefulness as now to be regarded as a district institution for the North-east of Scotland. Year by year the number of children has risen steadily until, with a limited accommodation of 80 cots, the hospital is unable, through lack of space, apart from the inconveniences and difficulties of the present buildings, to cope with the demands upon its accommodation, many ailing children having unfortunately to be turned away. The hospital has always secured the deepest interest and the general support of the most prominent citizens, but this cannot make up for the notable defects of the present building. Never designed for a hospital—a makeshift from the start—it is now hopelessly out of date, and the time has come when the increasing demands of an ever-growing city and wide surrounding district indicate that a larger and more efficient building must speedily be provided wherein to carry on the work. To be at all adequate the new buildings will require to contain at the very least 100 beds, and it is estimated that the erection of such a building, capable of ready extension for future requirements on a suitable site, will cost from £30,000 to £35,000.

Nov. 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The School of the Royal College of Surgeons in Ireland.

THE School of the Royal College of Surgeons has recently had cause to fear the rivalry of the various new State-endowed schools, being itself the only self-dependent school of medicine in Ireland. Attempts were made to enlist the sympathy of the Government with the view of obtaining relief as a direct grant. These attempts failed and a somewhat dismal outlook faced the school. A method has been found, however, by which help has been obtained from Government sources. The Department of Agriculture and Technical Instruction has agreed to recognise a certain number of courses in the school as courses in technical instruction, and to pay a small capitation grant. It is expected that the contribution this session will come to about £1000, and in future it may be more. This grant is, of course, not very great, but it will give considerable relief to the finances of the school.

Pasteurised Milk in the South Dublin Union.

Some weeks ago a report was presented to the South Dublin guardians which reflected on the use of pasteurised milk in the nursery.[1] The guardians thereupon directed the medical officer in charge of the nursery, Dr. F. J. Dunne, upon whose advice pasteurised milk had been introduced, to report upon the condition of the nursery. At their last meeting, without waiting for Dr. Dunne's report, the guardians decided forthwith to give up the use of pasteurised milk and to return to the use of fresh cow's milk. It was pointed out by certain guardians that the question of diet was in the main a medical question, and that it would be wise to wait for Dr. Dunne's report, but a majority of the guardians thought otherwise. This decision is unfortunate, as it looks as if for some reason inquiry is being avoided, and this on a subject which has much exercised the public.

Conferring of Degrees at the National University.

The first public conferring of degrees in connexion with University College, Dublin, took place last Saturday, the Vice-Chancellor of the University, Sir Christopher Nixon, presiding. In his address the Vice-Chancellor drew attention to the insufficient provision made for building in connexion with the National University. It is stated that only a sum of £40,000 is available at present, and Sir Christopher Nixon claims that at least £200,000 is required. It was an unpleasant feature of the ceremony that both the Vice-Chancellor's address and the actual conferring of degrees were interrupted by the rowdyism of a certain number of the students.

Corporation Grants to the City Hospitals.

For some time back the question of the contributions of the Dublin corporation to the city hospitals has been under consideration, as it has been suggested that the poor of the city are not obtaining the corresponding benefits to which they are entitled. At the meeting of the finance committee Councillor Quaid, with the object of effecting, if possible, a reduction in union infirmary expenditure, "which had increased enormously owing to the exclusion of large numbers of Dublin people from the city hospitals," said it would be desirable to have a conference between the finance committee and the boards of the North Dublin and South Dublin unions with a view of formulating a scheme for the revision of the grants or for a more efficient application thereof by a system of capitation fees. This conference has since been held, but the results have not been made public. No representation has been made to the Dublin hospitals, but the charge that the hospitals exclude city for the sake of country patients seems to have no proof in fact.

Election of a Direct Representative to the General Medical Council.

The election of a Direct Representative for Ireland to the General Medical Council is to take place in January next. Dr. Leonard Kidd of Enniskillen is the present representative, having defeated the late Sir William Thomson in 1906, and he has announced his intention of again seeking election. Up to the present there is no suggestion of any other candidate being put forward.

[1] THE LANCET, Oct. 8th, p. 1166.

Irish District Councils and the Medical Profession.

In reference to the appointment of an inspector under the Dairies and Cowsheds Order, the Cookstown rural council had a motion some time ago before it to appoint a veterinary surgeon for the whole union at £50 per annum, but an amendment was carried to offer the positions to the dispensary medical officers at £7 10*s.* each, while the previous salary had been £15. At the weekly meeting on Oct. 22nd replies were read from the dispensary medical officers all refusing the offer, their reason being the inadequacy of the salary, which, it was stated, would not pay posting expenses. Two notices of motion were then handed in, one to appoint a veterinary surgeon for the whole district at a salary of £30 for a year, the other to the effect that the medical officers be reappointed at the old payment of £15 each for the year. The whole discussion and extraordinary action of the Cookstown rural council indicate the need of a reformed State Medical Service.

County Antrim Infirmary.

At a meeting of the Ballymena board of guardians held on Oct. 29th the replies from the various dispensary medical officers of the district regarding whether they approved of sending patients for special treatment to the Co. Antrim Infirmary, Lisburn, were considered. Of these nine replies, one, not having sent any patients, could not form an opinion of the usefulness of the infirmary, and one saw no objection to sending patients to the Lisburn Infirmary provided the necessary specialists were on the staff and always available in cases of sudden emergency. The remainder were against sending patients to the Lisburn Infirmary, either because of its distance or because they preferred sending special cases to special hospitals in Belfast. It was agreed by the guardians to send a patient requiring special treatment to the Lisburn County Infirmary, as they had to consider how to get some return for the £117 they subscribed towards upkeep.

Annual Dinner of the Cork Medical and Surgical Society.

The annual dinner of the Cork Medical and Surgical Society, recently held at the Imperial Hotel, Cork, was a distinct success. Dr. John Booth, the President, occupied the chair. After the toast of "The King" had been duly honoured, the Recorder of Cork proposed the toast of "The Cork Medical School." Professor H. Corby and Dr. P. T. O'Sullivan having replied, the President proposed the toast of "The Army and Navy," to which Colonel Dodd replied, and the toast of "The Guests," coupling the toast with the names of Dr. P. J. Macnamara of Kilmallock, and Mr. Barry Galvin, legal adviser to the Cork Corporation. Mr. Philip Lee proposed the health of the President.

Nov. 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Disastrous Fire at the Toulouse Faculty of Medicine.

A GREAT part of the buildings of the Toulouse Faculty of Medicine was destroyed by fire on Oct. 27th. In the morning smoke was seen to be coming from under the roof, the whole of which was soon burning furiously and fell in, the conflagration being aided by a high wind which was blowing at the time. The great library was entirely destroyed, but the laboratory escaped. Of the first floor and the superstructure nothing now remains; the ground floor and the principal front have also suffered greatly. The physiological amphitheatre, the large room used by the professors, the dean's office, the secretary's office, and other portions of the administrative department have quite disappeared, but the great amphitheatre and some outlying portions of the main edifice have not suffered at all. Buildings which have cost 880,000 francs are for the most part reduced to ruins. The structural damage amounts to about 450,000 francs, and, including the value of the library, the total loss will be nearly 1,000,000 francs. The fire is believed to have been caused by an electrical short-circuit.

The Mental Aberration of King Charles VI. of France.

At a meeting of the Academy of Medicine held on Oct. 25th M. Dupré made a communication on the subject of the mental condition of King Charles VI. of France. He said that this monarch, who suffered from inherited psychical defects, was of only moderate intelligence and low mental stability, and that for 30 years he had from time to time attacks of insanity alternating with lucid intervals; during these intervals, however, he was able to resume his position and duties as head of the State. His mind began to fail at the age of 24 years, some months after an illness which was probably typhoid fever, the first symptom of mental disorder being the celebrated attack which he had in the forest of Le Mans. An examination of the clinical features of this attack showed the association of maniacal excitement with confusional delirium.

Citrate of Soda in the Vomiting of Suckling Infants.

At a meeting of the Academy of Medicine held on Oct. 18th M. Variot described his investigations and his numerous observations on the beneficial action of citrate of soda in the vomiting of suckling infants. He said that this remedy, which was already in general use, ought to be given in doses of 1 or 2 grammes daily. Whether the vomiting be due to insufficient nourishment or to over-feeding, the administration of citrate of soda was in either case beneficial.

Oysters.

Speaking at a meeting of the Academy of Sciences on Oct. 24th M. Henneguy gave an account of some experiments which had been made with oysters kept in contaminated water. It was found that oysters which had lived in such water from the earliest stage of their existence became wholesome when transferred to filtered sea-water for a week or two. The sea-water used in connexion with the laboratory at Concarneau was filtered through thick layers of sand, and the oysters kept in this water did not deteriorate in either quality or flavour.

A New Symptom in the Diagnosis of Pulmonary Lesions.

At a meeting of the Academy of Medicine held on Oct. 18th M. Hirtz described a very important sign which will be of considerable assistance in the diagnosis of certain thoracic lesions. After having percussed the chest while the patient was breathing in the normal manner, he percussed it again whilst the patient was distending the thorax by a prolonged inspiration. If an area of dulness observed in the first percussion disappeared in the second one the inference was that the dulness was due to a pulmonary lesion and not to pleural effusion.

Sleeping Sickness.

M. Roux, director of the Pasteur Institute, presented to the Academy of Sciences on Oct. 24th a report on the researches of M. Roubaud, who has found that the trypanosoma, which was the cause of sleeping sickness, perished in seasons of drought, even in the proboscis of the tsetse fly by whose bites the disease was propagated.

Oct. 31st.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of the Syphilitic in Rome.

Professor Ciarrocchi, the well-known dermatologist and medical director of the Hospital of San Gallicano, has furnished me with the following particulars regarding the institutions existing in Rome for the treatment of persons suffering from syphilis. These institutions are of two kinds—namely, hospitals for the reception of the severer cases, and dispensaries or "ambulatorii" for those who are able to be up and about and do not require rest in bed. The Hospital of San Gallicano, founded in 1724, is that which receives the great majority of the former class of patients. It is an interesting old building in the Trastevere district of Rome, within a short distance of the Tiber, and in its large, lofty, well-ventilated wards affords accommodation for 250 beds, of which 150 are devoted to the reception and treatment of venereal cases, the remaining 100 beds being chiefly reserved for the victims of ringworm, a disease very prevalent amongst the peasantry in the Roman Campagna. This hospital forms part of the "Opera Pia degli Ospedali Riuniti di Roma," an independent and autonomous organisation with its own endowment. In the case of syphilitic patients, however, the organisation receives a subvention from the State, amounting to about 3 lire (2*s.* 5*d.*) per diem for each venereal patient treated at San Gallicano, in consideration of

the latter's utility in restricting the spread of syphilis. From 1500 to 2000 of such patients are received and treated in its wards every year. A limited number of syphilitic cases is received into the dermo-syphilopathic department of the Policlinico, which has about 50 beds at its disposal for this object, but these patients are taken in only for teaching purposes, and are small in number, funds not permitting of more than a few of the beds being so occupied. Persons suffering from syphilis affecting special organs are also received into many other hospitals in the city—those, e.g., with uterine forms into the Obstetrico-Gynæcological Clinics, those with ocular forms into the Opthalmological Clinics, and so on. In San Gallicano, as well as in the other Roman hospitals, patients with venereal complaints are placed in the ordinary wards more or less together with those suffering from ordinary diseases, the strictest precautions being at the same time observed to obviate any possibility of contagion, whether moral or physical, being conveyed to the latter. The absolute segregation and isolation of the syphilitic insisted upon in the past are no longer practised, having yielded unsatisfactory results. But the greater number of syphilitics, those, namely, that do not require to remain in bed, are treated at the Syphilitic Dispensaries ("Dispensarii Celtici"). Of these, there is one at San Gallicano itself, one at the Hospital of St. Antonio, a third at the dermo-syphilopathic department of the Policlinico, and six others in the various centres of the city. Each dispensary has its own medical director and one or two medical assistants whose duty it is to give consultations every day for two hours, in some dispensaries to men and women on alternate days, in others to both sexes indiscriminately on the same day, according to the accommodation available. Medicines are supplied gratuitously to the very poor, semi-gratuitously to others. Those dispensaries which are attached to the hospitals receive subsidies from the State, but the others are entirely supported by the State. The average daily number of patients treated at each dispensary is about 100. Following ancient tradition, some of the pharmacies put a room at the disposal of medical men for the treatment of dispensary patients, but there are no means of estimating the numbers of these. The routine treatment of the disease consists in the hypodermic injection of preparations of mercury, either in soluble or insoluble forms. Finally, for the army there is a special hospital for venereal diseases, that of Santa Croce in Gerusalemme. For the supervision of brothels and of prostitutes in Rome the law provides a special sanitary service under the control of the Government.

Early Recognition in Italy of the Infectiousness of Phthisis.

It is well known that the infectious nature of pulmonary phthisis has long been recognised in most of the Latin countries. This was more particularly the case in Italy, where, indeed, stringent laws have from time to time been enacted prescribing rigorous measures against its spread. For example, in 1754 the magistrate of public health of Florence decreed that each physician of the Grand Duchy of Tuscany should be obliged to denounce to the Tribunal of Public Health in Florence, and to the government commissioners and judges in the other provinces, any case of confirmed consumption under a penalty of 100 scudi; and later Ferdinand of Naples issued a decree ordering the destruction by fire of the clothing and effects of all persons dying from consumption. That a law was in force under the Papal government in Rome early in the last century would appear from the account given by Joseph Severn, the devoted friend of John Keats, in letters written before and about the time of the latter's death and now preserved in the Keats-Shelley Memorial House in the Piazza di Spagna in that city. Here is an extract from one of these dated Jan. 11th, 1821, addressed to Mrs. Bawne: "..... but the inhumanity, the barbarism of these Italians! So far I have kept everything from poor Keats, but if he did know but part what I suffer from them and their cursed laws, it would kill him. Just to instance one thing among many. News was brought me the other day that our gentle landlady had reported to the police that my friend was dying of consumption. Now their law is that every individual thing, even to the paper on the walls of each room the patient has been in, shall without reserve be destroyed by fire, the loss to be made better than good by his friends." Again, after Keats had died, and poor Severn was suffering from the effects of his unremitting devotion to his friend whom he had nursed single-handed during the last short weeks of his life, comes another outburst of wrath in a letter written on March 3rd, 1821: "These brutal Italians have nearly done their monstrous business—they have burned the furniture—they have done their meetings—and I believe, at least hope, no more of these cursed cruelties will take place"; and, again, "On the head of my partial collapse came an unlooked-for annoyance. The vile indiscriminating Roman law required that all the furniture should be burned and the rooms refurnished and every way restored. In this new disaster Dr. Clark [the eminent physician, afterwards Sir James Clark] was a true friend in need, and managed to reduce the charges to one-half the amount demanded from me. The whole affair was most distressing and shameful." And finally he writes: "The burning of the furniture took place in the Piazza di Spagna. Then the walls were all done up afresh." I may add in connexion with this burning of Keats's furniture that the caretaker of the Keats-Shelley Memorial House has heard the story of it from his mother, who was an eye-witness of the occurrence, which took place in the public square in the presence of a crowd of onlookers. The unfortunate victims of consumption and their friends must have suffered great hardships in these times, and Severn's strong language will, under the circumstances, be excused even by the objects of his anger. But at the same time the Italians have some reason to pride themselves on the early application in their country of these really enlightened if Spartan measures which later knowledge of the etiology of phthisis has shown to be largely warranted, and which are being adopted to-day by every civilised country, although no doubt in a milder and less oppressive form than they we apt to assume in that ruder epoch.

Oct. 29th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Scopolamine-Pantopon Narcosis.

Dr. G. Brüstlein, assistant surgeon at the Inselspital in Bern, has just published a paper on the use of pantopon and scopolamine to replace general chloroform or ether narcosis. Pantopon is a purified solution of opium. In a good many cases, especially strumectomies, the patients were walked in a semi-conscious condition into the operating-room and operated on without ether, though in some cases a small quantity of ether was still necessary. There was total absence of the feeling of suffocation, which is often distressing in ether narcosis. One and a quarter to one and a half hours before the operation one gramme of a 2 per cent. solution of pantopon was injected hypodermically; half an hour later the dose was repeated with the addition of 1/100 grain of scopolamine. Women only received one injection of pantopon, 2/3 grain, and 1/200 grain scopolamine. In over 100 cases this narcosis was followed neither by vomiting nor constipation. The solution must always be prepared just before use.

Centenary Celebration of the Medical Society of the Canton of Zürich.

On Oct. 19th the centenary celebration of the Medical Society of the Canton of Zürich took place. There was a meeting at the town-hall in Zürich, at which Dr. Hauser, the present chairman, who has just been appointed chief medical officer of the Swiss army, and also M. Lutz, member of the Government, made speeches. The banquet, attended by upwards of 300 medical men and their wives, took place at the town-hall, and many medical societies were represented. The leading medical journal of Switzerland, the *Korrespondenzblatt für Schweizer Aerzte*, whose editors are Professor Jaquet and Dr. von der Mühl of Basel, celebrated the occasion by issuing a double number containing a dozen valuable contributions by well-known medical men. Of these contributions I may mention the following: Professor Cloetta, on the Nature of the Diastole; Professor Eichhorst, on Infantile Alcoholic Neuritis; Professor Haub, on the Causal Treatment of Eye Diseases; Dr. Wilhelm Schulthess, on Scolioses and the School; Professor Silberschmid, on the Signification of Pathological Microbes; and Professor Wyder, on Early Rising after Childbirth.

Oct. 29th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Sunstroke and Insurance against Accidents.

A MAN recently sued a Hungarian accident insurance company under his policy on the ground that an attack of sunstroke from which he suffered was of the nature of an accident. The company, however, resisted the claim, pleading that sunstroke was not an accident but a disease, and that their policy holders were insured only against injury from unforeseen external violence. The word "accident" in the policy, from the company's point of view, was to be taken as employed in its ordinary sense—that is to say, as an occurrence not according to the usual course of things. It might certainly be by accident that a person became exposed to conditions leading to sunstroke, but the circumstances under which a person might be affected thereby ought to be classed, in the opinion of the company, among natural causes and natural phenomena, and these could not be correctly called accidents. The court decided in favour of the plaintiff, but the medical journals are not quite satisfied as to the justice of the decision. They say that if it is allowed to stand, then frost-bite, chilblains, and even "catching cold" would have to be placed in the category of accidents, and might be made the subject of claims.

The Treatment of Acne Rosacea by Tonogen.

In a recent article in the *Orvosok Lapja* Dr. Pór writes that the administration of digestive tonics and intestinal antiseptics is usually indicated in acne rosacea. In order to bring about the disappearance of the chronically dilated blood-vessels he has employed tonogen (an extract of the suprarenal gland) both as a topical and also as an internal remedy. The application of the extract to the affected area of skin for the first time determines slight transient hyperæmia, which is succeeded by pallor due to the contraction of vessels, but this hyperæmia is not usually observed after subsequent applications. Permanent improvement was observed by Dr. Pór within six weeks of the commencement of the treatment. The effects of the external applications were markedly enhanced by the simultaneous internal administration of the extract in doses commencing with one five-grain tablet thrice daily, gradually raised to six, the dose being reduced in the event of any unpleasant symptoms, such as giddiness or nausea. In cases of moderate severity the combined treatment proved very satisfactory, but it was sometimes found necessary to eradicate the enlarged vessels by the electro-cautery.

Variations in the Susceptibility of Guinea-pigs to Diphtheria Toxin.

At a recent meeting of the Medical Society Dr. Schiff, in speaking of the routine testing of the strength of diphtheria antitoxin, called attention to the usefulness of the antitoxin unit furnished by the Institute for Experimental Therapy under the direction of Professor Ehrlich. The one uncertain element was, he said, the relative resistance of the guinea-pigs to diphtheria toxin. It was found that different dealers furnished guinea-pigs of slightly different susceptibility, and on investigating the matter he discovered that the different degrees of resistance belonged to certain families or litters and were constant for those families. For instance, one mother gave birth to young which did not react to what was the usual fatal dose, and four successive litters possessed the same resistance. As each guinea-pig could be tested but once the precise degree of resistance could not be measured, but it appeared probable that this family could tolerate 40 per cent. more toxin when mixed with the antitoxic unit than those of average susceptibility. Other mothers were traced whose offspring possessed less resistance than the ones described, but could still neutralise 20 per cent. more toxin, when mixed with the antitoxin unit, than the average. Dr. Schiff said that experiments were now being made for the purpose of determining the part played by the male in the transmission of toxin resistance. In the case of the most resistant family, the four litters were the offspring of two males.

Paroxysmal Tachycardia.

Dr. Neress has reported an obscure case of heart disease which terminated fatally. The patient had had his attention called to his heart in boyhood by his medical attendant, and had always troubled himself about it. Attacks of fluttering, with changes in disposition, which varied with the character of the pulse, were the prominent features of the case. The physical signs were variable, signs of myocarditis with congestion of the liver and œdema of the feet gradually developing. There was no pain, but attacks of apparent angina occurred with fair frequency. At the necropsy fibrous myocarditis, sclerosis of the coronary arteries, and a thrombosis of the left ventricle were found. Many diagnoses had been made on this case, and it illustrated the great difficulty of recognising myocarditis in the early stage. Dr. Neress emphasised the importance of causing patients to make muscular efforts during the examination of the heart; a murmur which developed under such exercise was suspicious.

Oct. 29th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Epidemic of Cholera.

SINCE I wrote last cholera has made its appearance in the Ottoman metropolis. This was, of course, anticipated, considering the near proximity of Russia and the enormous difficulties which the medical authorities at Constantinople have to contend with in order to take the necessary measures of prevention. Then again, it is well-nigh impossible to prevent an epidemic spreading to Constantinople, a city of great commercial importance and of imperfect sanitary conditions Happily, however, the weather is cool at present. Up to now the disease has made little progress, one or two deaths occurring daily, seldom more. According to the official reports, since Sept. 13th, when the epidemic seems to have made its first appearance, to Oct. 12th, there were registered 84 cases, of which 46 died. One of the great difficulties which the medical and municipal authorities of the metropolis, as well as of the provinces, encounter in combating the spread of the epidemic is, as in Russia, the incredulity and ignorance of the lower classes of the population. A great many of them do not believe that there is any cholera in Constantinople, and refuse to take the prescribed measures of precaution, spreading at the same time the absurd news that medical men "invent" cases of cholera in order to be able to draw money from the Budget assigned to combat the epidemic. In the provinces the behaviour of the people is still worse. In Trebizond, for instance, a medical man was mobbed for trying to bring help to the cholera-stricken. As in Russia, so also in some parts of Turkey, the populace firmly believe that medical men poison the wells of drinking-water, thereby causing disease and death for selfish personal interests. The Sanitary Commission continues to take rigorous measures. All suspicious quarters are visited and sanitary improvements are introduced so far as is possible in Constantinople, with its dirty and narrow streets, and a drainage system so antiquated. All the vendors whose stands are unclean are being fined or otherwise punished. This is done, for instance, in quarters like Tatavla, a valley beyond, and to the left of, Pera, where the sanitary conditions are exceptionally bad. It has also been decided to increase the number of the municipal medical men so as to enable them to visit the houses of the poorer quarters. I understand, too, that it has been thought necessary to issue a proclamation warning the population against throwing any refuse from doors and windows—a deplorable practice which is very much resorted to at Constantinople. A local paper announces that the *tchoptchis* (refuse gatherers) will henceforward call twice daily, instead of once, at each house, and that the number of street sweepers will be considerably increased. In Bagdad and its neighbourhood cholera is spreading, and a case of the disease is reported from Belgrade. The administration of the Oriental Railway Company states that the Bulgarian Sanitary Council has decided that all passengers, infected or non-infected, travelling beyond Zaribrod may pass Bulgaria without quarantine, provided that they are kept in a special carriage and do not come in contact with any person in Bulgaria.

A New Hospital.

I understand that the municipality of Constantinople intends to erect a new hospital in the quarter of Shehir Emin, beyond Ak Serai, in Stamboul. The *Osmanischer Lloyd* says that the plans are ready, and that the construction will begin in the month of March. The expense of construction will amount to £T50,000, and will be drawn

from the city budget. After the completion of the institution the hospital of "Gureba-i-Musselmin" of Yeni Baghtche Tchair will be transferred to it. The new hospital will contain rooms for private patients who are able to pay. The "Gureba-i-Musselmin," a Moslem hospital, which was much neglected during the *régime* of Abdul Hamid, is receiving at present adequate attention under the chief medical officer, Dr. Hussein Ihsan Pasha. The wards, the barracks, the operation room, and the laboratory are being completely renewed. It can now accommodate 300 patients.

The Sale of Poisonous Drugs.

The attention of the medical and other authorities is again drawn to the fact that the public in Turkey have every facility for obtaining poisonous drugs without any medical prescription. In Constantinople, for instance, it is very easy to procure corrosive sublimate without prescription at the different *actars* (druggist shops) and at the *Missir Tcharshi* (the so-called Egyptian bazaar). In the provinces it is, of course, still worse, as the lack of control and supervision there is very great indeed. Often the most poisonous medicines are taken by ignorant people in incredibly large doses, with results that can easily be imagined. The other day a young woman was taken, in a state of complete collapse, into the Jewish hospital at Balat, on the right shore of the Golden Horn, and soon afterwards died there. Investigation revealed that she had obtained, in the Egyptian bazaar, a large dose of corrosive sublimate and had drunk it in order to procure abortion. She already had seven children, and dreaded a further increase of her family. It is necessary, therefore, that the authorities should take all possible measures and precautions against the indiscriminate sale of poisonous drugs.

Earthquakes in the Provinces.

In Salour, *vilayet* Diarbekir, a violent earthquake has caused much damage, numerous buildings being injured and a number completely destroyed. Happily, however, there was no loss of human lives. Also in the *vilayets* in the neighbourhood of Diarbekir, as well as in the province of Erzeroum, violent earthquakes occurred, but details of these are wanting as yet.

Miscellanea.

The Children's Hospital at Shishli, beyond Pera and Taxim, will receive the services of a special medical attendant with a salary of £T10 monthly, whose duty will be to apply the Roentgen-ray treatment.—The Ministry of War is sending this year 20 military medical officers to Germany to complete their medical studies there.—Under the presidency of Madame Rifaat Pasha, the wife of the Minister for Foreign Affairs, a Red Cross Society has been formed, which has now issued its statutes.—The Turks have formed an Ottoman Anti-Alcoholic Union with the purpose of combating the increasing consumption of alcohol among Moslems.

Oct. 13th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Ethnology in West Australia.

Two ethnological expeditions have begun operations in West Australia. One is organised from Cambridge, under the direction of Mr. Alfred Brown, and the other is a Swedish undertaking in the charge of Dr. Eric Mjoberg. This latter expedition will cost £1100, the funds being provided by the Stockholm Academy of Sciences. It will proceed to the north-west and operate from Derby up the Fitzroy River. The Cambridge expedition has a double object in a study of aboriginal features and the collection of botanical specimens.

Radium for the Poor.

In response to the appeal by the *Sydney Daily Telegraph* for public subscriptions to a radium fund the sum of £2021 has been received, including £1400 as the result of a special *matinée* performance and collection by Miss Nellie Stewart.

Remarkable Record.

Mr. Justice Chomley of Victoria has been granted a year's leave of absence. The judge has been in the public service for 57 years, and during the whole of that period has not had a single day's sick leave.

Private Hospitals.

A new Bill has been introduced in Victoria to regulate the conduct of private hospitals. The definition is, "Any house, building, tent, or place (other than those excluded) in which medical, surgical, or lying-in cases are received or lodged, or in which it is intended that they shall be received or lodged for treatment, attendance, and cure, for which a charge is made." All private hospitals are to be registered annually. The licence is issued by the Minister for Public Health on the advice of the Board, but the former has absolute power. Every private hospital must at all times have a resident manager, and this person must be subject to the approval of the Board. Registration books must be kept and official inspection is provided for. The managers are required to give information respecting certain diseases and in the case of illegitimate births to notify the neglected children's department.

Bush Nursing Scheme.

The scheme for extension of district nursing to country areas, which was formulated by Lady Dudley, has practically been abandoned. Meetings were held in Sydney and Melbourne, but it was apparent that financial support would not be forthcoming from the general public and that the feeling amongst medical men and nurses was that the proposed new order of nursing was not required.

Melbourne Hospital.

Dr. W. Moore, the senior surgeon at this institution, has resigned his position on the staff after a tenure of 25 years. Under the new regulations Dr. Moore might have continued to hold the position for many years so far as age limit is concerned, but he has stated that his object in retiring is to give the younger surgeons an opportunity of advancement. Dr. Moore has been one of the leading figures in the surgical world in Australia for the past 15 or 20 years. His training is entirely Australian and he has not visited any of the old world centres. Dr. Moore will continue to hold his seat on the committee and take an interest in the affairs of the hospital.

Health of Sydney.

The annual report issued by Dr. W. G. Armstrong, the health officer, sets forth that the population of Sydney is now 592,000. The birth-rate was 26·11 per 1000 of estimated mean population, and illegitimate births formed 10 per cent. of total births. The recorded death-rate was 9·83 per 1000, the fully corrected rate, however, being 11·09. Scarlet fever figures were low, but diphtheria was higher than any year since notification became compulsory. 22 persons were known to be attacked by plague, of whom 7 died. Some of these belonged to the crew of a visiting steamer. About 68,000 rats and 8000 mice were examined, and 136 rats and 11 mice were plague infected. The death-rate from tuberculosis was 0·83 per 1000 living. Infantile mortality rate was 81 per 1000 births, which was the lowest yet recorded. The Pure Foods Act came into force on July 1st, 1909, and has so far been administered by the Board of Health, no administrative power having been granted to any local authorities. Generally the amount of food adulteration disclosed was not significant.

Melbourne Fever Hospital.

The Infectious Diseases Hospital at Fairfield, a Melbourne suburb, has been a fruitful source of complaint and dissatisfaction. The Government called for a report from the Board of Health, and under this it is probable reforms will be undertaken. The building is quite inadequate, leading to constant overcrowding. The charges for maintenance are excessive and it is recommended that they be abolished altogether and the hospital supported by Government grants and direct municipal aid. These reforms will meet the chief objections, which have related mainly to such gross overcrowding as placing two children in one bed and to the injustice of compelling comparatively poor parents to pay 7*s.* 6*d.* per diem for each child treated.

Parkinson Memorial.

To perpetuate the memory of the late Dr. T. C. Parkinson, who died from plague accidentally contracted while engaged in research work for the Indian Plague Commission at Elstree, Herts, the Sydney University has decided to establish a Parkinson memorial prize. The prize will be awarded annually, and the subject of examination will be pathology.

Oct. 1st.

Obituary.

SYDNEY RINGER, M.D. LOND., F.R.C.P. LOND., F.R.S.,

CONSULTING PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL.

IN our issue of Oct. 22nd we announced briefly the death of Dr. Sydney Ringer, which took place at his country residence at Lastingham, Yorkshire, on Oct. 14th, in the seventy-sixth year of his age.

Dr. Sydney Ringer, in virtue of one of his books, possessed a name that is familiar to many generations of medical students, for the famous "Handbook of Therapeutics" ran through many editions, increasing in value and popularity to the end. His professional career was closely associated with University College Hospital, at which institution he held every post, and where he was at the time of his death emeritus professor of medicine. Like so many distinguished members of the medical profession Sydney Ringer was a Norwich man. Entering University College as a medical student, he took his earliest qualification in 1859 as Member of the Royal College of Surgeons of England and Licentiate of the Society of Apothecaries, the usual double qualification of that day. He was at this time 25 years old, and therefore a little senior to men of his class, which makes the fact that in the very year of his qualification he contributed a paper on Sound to the Transactions of the Royal Society more easily understood. In 1860 he matriculated in the University of London as M.B., proceeding three years later to the M.D. degree, in which year he took also the Membership of the Royal College of Physicians of London. He had at this time established quite a position as a medical writer, having contributed articles on Diabetes, Ague, and Scarlet Fever to the Transactions of the Medico-Chirurgical Society and also two articles upon Cardiac Murmurs to the *Edinburgh Monthly Journal*. In 1863 he was elected an assistant physician at University College Hospital, being also assistant physician at Great Ormond-street Children's Hospital, where he had filled the post of medical registrar, while he had worked also in Paris and at the Brompton Hospital for Consumption and Diseases of the Chest.

His election to University College Hospital gave him an opportunity of showing that he was an admirable clinical teacher. He would discuss any case that came before him in a systematic manner, contrasting the various symptoms in comparison with the maladies with which they might be associated, doing this, moreover, in a systematic and lucid manner and without any special preparation, which could hardly fail to be valuable to the students when the range of practical medicine with which he would deal came to be considered. His magnificent work in the out-patient department of the hospital gave him this close grasp of clinical medicine in all its phases. In addition to his learning and acuteness he had the great gifts of order and industry. Punctuality itself, he never was sparing of his time or of his energies, and was relentless in tracing to their first causes the meanings of any symptoms that presented themselves. This gave him a wonderful familiarity with any medical phenomena in whatever stage they presented themselves to his attention, and while allowing him to realise the difficulties which the students were feeling, enabled him also to meet those difficulties, both comprehensively and in detail, in the order in which he had taught himself to surmount them. University College Hospital was at that time a home of great clinicians. Walshe, Jenner, Parkes, and Reynolds, to mention four, in their several capacities were achieving high reputation by their interpretations of pathology and by the practical nature of the lessons they were able to base upon the solid foundation of their scientific equipment. Ringer, though his reputation as a clinician was largely overshadowed by the fame which he acquired as a pharmacologist, belonged essentially to their group, and generations of students are able to testify that they learned from his lips lessons of incomparable practical value while working in his wards.

Ringer was house physician to Dr. Parkes and his bent towards clinical medicine was greatly stimulated by the work of Walshe and Jenner. The fact that Ringer devoted himself at first to the pursuit of clinical medicine may perhaps be attributed to the influence of these teachers. All students of University College know what an exceptional clinician he was, how quick and accurate in observing and shrewd in the interpretation of symptoms, and how painstaking he was in comparing the findings of the post-mortem room with the observations and deductions made during life. He was also almost always engaged in investigating some point in clinical medicine or instigating others to do so. Thus some 25 years ago he caused one of his house physicians to make an extended series of observations on leucocytosis in various diseased conditions from the point of view of diagnosis, and later on was much interested in, and made many observations on, the significance of pulsation of the jugular veins. Clinical work absorbed a large portion of his time and energies, although the work that he did in the physiological laboratory of University College in pharmacology and physiology is that by which he will be remembered, more especially by those who did not come under his personal influence as a teacher of medicine. Ringer carried out numerous researches on the action of drugs and poisons on the functions of the body and was one of the first in this country to put pharmacology on a definite scientific basis, but important as this work was it does not compare with his really classical observations on the action of the inorganic bases such as calcium, potassium, sodium, &c., on the functions of living protoplasm. Ringer's observations on this subject were carried out by systematic experiments conducted during a long series of years with a marvellous degree of completeness and accuracy so that subsequent workers have found but little to add. He showed how the presence of these salts in small quantity was an essential of most forms of protoplasmic activity, and also how the members of one group tended to produce antagonistic effects to those of another group, and he illustrated this more especially in the case of potassium on the one hand and calcium on the other. These researches attracted the notice of physiologists at once, and from the time of their publication to the present their fundamental importance has been recognised more and more, and many of his results have now become the commonplaces of physiology. Ringer was a freely scientific physician with a very broad outlook so far as concerned the problems of living matter and possessed a fertile imagination which he controlled in all his work by the most rigid experimental tests.

We have endeavoured in this brief sketch to display Ringer in his double position as clinician and pharmacologist because, as has happened to other great men before him and as must inevitably happen again, his success in two somewhat different fields militated against his receiving, save from those who had intimate opportunities of estimating his worth, quite that high position in medicine to which his qualities entitled him. Had he not devoted a vast amount of time to the scientific work with which his name will ever be associated he might have attained to that high place in professional medicine which Sir William Jenner and others of his colleagues reached. Had he deserted clinical fields and consolidated his attention upon the work of the physiological laboratory his fame as a chemist would have been wider and his contributions to the advancement of chemistry more frequent. We may quote here a passage from *Nature* which puts the view very clearly which we have tried to express. "The solution of salts introduced by him (Ringer), and universally known by his name, is to-day to be found in every biological laboratory, and its use has led to developments in many fields of research. The work on which its composition is based has often received too little attention. This may be accounted for by the time at which it appeared: Ringer's work was done before the modern views of diffusion and dissociation of salts in solution found their way into biology. And the investigators who approached the study of the biological relations of the salts from the side of the new physico-chemistry appear to have overlooked the work of those who had investigated the subject without the aid of the newer methods. Quite recently, however, some amends have been made in this respect, and it is now recognised that the pioneer in this work had reached in essentials the same position nearly twenty years ago as has now been attained generally."

The factor which played the main part in somewhat preventing Ringer from obtaining the public recognition which he deserved was his unobtrusiveness. He was a very quiet reserved man in private life, taking no part in social affairs whatever, and no one, save those collaborating with him, ever heard from him much about his work, its objects and

developments. He made valuable and not infrequent communications to scientific journals, but, save in this way, he effaced himself as far as possible. In 1869 appeared his well-known "Handbook of Therapeutics," which in many directions, as we said ourselves at the time, revolutionised the sciences of which it treated. This manual ran through 14 editions, and at different times during its successful progress from issue to issue we noted the additions, subtractions, and modifications almost always with approval.

Dr. Sydney Ringer was in good health until two or three years ago, but recently a slight cerebral seizure caused his friends anxiety, taken in connexion with his advanced years. The symptoms, however, were passing off when on Oct. 13th a fresh seizure occurred from which he never rallied.

WILLIAM HALL, M.D. BRUX., F.R.C.S. EDIN., L.R.C.P. EDIN., J.P.

BY the death of Dr. William Hall, which occurred on Oct. 25th, Lancaster has lost a highly respected medical practitioner. Born in 1850, he was educated at the Lancaster Royal Grammar School, afterwards proceeding to Edinburgh, where he obtained the Licentiateship of the Royal College of Surgeons in 1871. In the following year he became a Licentiate of the Royal College of Physicians, and in 1886 obtained the surgical Fellowship and the degree of Doctor of Medicine at the University of Brussels. Upon qualifying he joined his father, with whom he continued in practice in Lancaster till 1883. After the retirement of Dr. Hall senior, the practice was continued jointly with Mr. J. H. Irvin, and was subsequently amalgamated with another practice. Dr. Hall was at one time district surgeon to the London and North-Western Railway and honorary local secretary for the Lancashire and Cheshire branch of the British Medical Association, of which branch he has filled the office of president. For 37 years Dr. Hall was connected with the Royal Lancashire Infirmary. In 1873 he was elected an honorary surgeon, and in 1880 he was appointed a trustee of the institution, subsequently becoming its president, an office which he held for two years. In the erection of the present infirmary he took an active part and was among those presented to the King when, as Duke of York, he opened the building in 1896. He took a great interest in public matters, and besides having filled the office of town councillor was one of the Charity Trustees. For 28 years he was connected with the 5th Royal Lancashire Artillery, from which company he retired with the rank of surgeon-major in 1899.

Dr. Hall leaves a widow, the daughter of Colonel Cotton, whom he married in 1874, and five daughters. To the poor Dr. Hall was always a friend, and he will be greatly missed by them as well as by his many friends and the public generally. As a mark of respect the flags on the town-hall, the Royal Infirmary, and other public buildings in Lancaster were flown at half-mast when his death became known.

CHARLES EDWARD ADAMS, M.B., B.SC. LOND., M.R.C.S. ENG.

Dr. C. E. Adams, whose untimely death occurred at Buckhurst Hill after a long and painful illness, was only 49 years of age. He settled in Buckhurst Hill in 1885, the same year in which he qualified. He never spared himself in the interests of his numerous patients. Of a retiring nature, he never busied himself with public affairs, but, keenly imbued as he was with the high responsibilities of his profession, he created a reputation for himself as an able diagnostician and a sound clinician amongst his *confrères* in the district. In recent years he had taken a very leading part in the movement to provide a new and efficient hospital for the neighbourhood. Unhappily, he has not been spared to see the completion of this scheme. Apart from medicine he had educated himself to be an accomplished musician, and, what is unusual in an amateur, his talent lay in composition. For many years he was the conductor of the local musical society, and the president of the choral society. During his 25 years of active life in Buckhurst Hill he endeared himself to all classes and denominations by his sweet gentleness and never-failing courtesy. He was an ideal practitioner, combining the courtliness of the older generation with the keener scientific ideals of the later school.

M. KRÖNLEIN.

THE town of Zürich, and especially the medical faculty of the University, deplore the death of Dr. M. Krönlein, who for 29 years occupied the position of teacher of clinical surgery at the University of Zürich. Born at Schaffhausen in Switzerland in 1846, he studied in Zürich, took his medical degree in 1870, and immediately took charge of three surgical wards in the Franco-Prussian war. For three years he was Professor Rose's surgical assistant, from 1873 to 1881 he acted as first assistant to Professor von Langenbeck in Berlin, taking a similar charge in Zürich in 1881. He was well known in the medical world as the author of no less than 84 publications. We may here mention his contribution on luxations in the Encyclopædia of Billroth and Luecke, and his smaller works on the surgery of the brain and kidneys. He was the first in Switzerland to perform the operation for appendicitis and the first to extirpate with success a sarcoma of the lung. He was very active in university affairs, and, as dean and rector, took the greatest interest in the development of the surgical department. Appreciated alike for his conscientiousness, industry, and the thoroughness of his knowledge, hundreds of young medical men owe much to his teaching, and a goodly number of his assistants have to thank him for their advancement in life.

Dr. Krönlein died after several months of severe suffering from attacks of angina pectoris, succumbing on Oct. 25th; his remains were cremated on the 28th.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Joseph Forster, professor of hygiene in the University of Strasburg, who was an LL.D. of the University of Edinburgh, and a member of numerous medical and scientific societies and academies, and editor of the *Archiv für Hygiene*. He was born in 1844, and studied in Leipsic and Munich under Pettenkofer and Voit. His first professorship was that of hygiene at the Munich Veterinary School, but a year later he was appointed to the chair of hygiene in the University of Amsterdam, where he remained until he was invited to Strasburg to undertake the direction of the recently erected Institute of Hygiene and Bacteriology in 1896. He made many important researches on food sanitation and in bacteriology. Amongst other things he showed that a number of microbes not only retain their vitality at 0° C. but multiply and develop at that temperature so as to produce decomposition of tissues; also that the phosphorescent appearances often noticed in the sea are really due to micro-organisms.—Dr. William G. Daggett, lecturer on medicine in Yale.—Dr. G. Baumgarten, professor of medicine in Washington University, St. Louis.—Dr. Herbart, formerly physician to the Dunkirk Hospital.—Dr. Moritz Hofmann, formerly extraordinary professor of forensic medicine in the University of Munich.—Dr. J. V. Shoemaker, professor of materia medica and therapeutics in the Medico-Chirurgical College, Philadelphia.—Dr. Carey Kennedy Fleming, professor of abdominal surgery in the Denver and Gross College of Medicine.—Dr. J. P. Rottot, formerly professor of clinical medicine in the Montreal School of Medicine and Surgery.—Dr. A. Angelby, whose name is known as an enthusiastic worker in the field of the administration and management of French mineral springs.—Dr. Odulio Hernandez, professor of external pathology in the University of Buenos Aires.—Dr. Rafael Herrera Vegas, a distinguished practitioner in Buenos Aires, who had been an honorary member of the Commission appointed to study and report upon the question of Yellow Fever.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general meeting of this association will be held at 3 o'clock on Tuesday, Nov. 15th, at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Dr. John Macpherson. There will be a meeting of the Educational Committee at 10 A.M., of the Parliamentary Committee at 11.30 A.M., and of the council at 12.30 P.M. In the evening the members will dine together at the Café Monico at 7 o'clock, the price of the dinner being 7*s.* 6*d.* exclusive of wine. Evening dress will be optional. All communications should be made to Dr. C. Hubert Bond, honorary general secretary, 11, Chandos-street, Cavendish-square, London, W.

Medical News.

THE QUEEN'S UNIVERSITY OF BELFAST.—The following candidates have passed the D.P.H. examination:—

R. G. M. Clements, M.D., Charles Dickson, M.B., G. W. M'Comb, M.B., and *J. A. Sinton, M.B., D.P.H. Cantab.

* Passed with distinction and awarded special prize.

FOREIGN UNIVERSITY INTELLIGENCE.—*Altanta* (*College of Physicians and Surgeons*): Dr. Harry S. Bachmann of Philadelphia has been appointed Professor of Physiology.—*Berlin*: Dr. Lesser, Extraordinary Professor of Dermatology, has been promoted to an Honorary Professorship. Dr. Fritz Frankenhäuser (*privat-docent* of Medicine), Dr. Ulrich Friedemann (*privat-docent* of Hygiene), and Dr. Egon Thomasczewski (*privat-docent* of Dermatology) have been granted the title of Professor. Also, in connexion with the termination of the tenth of the study journeys, Dr. Oliven, Dr. Bassenge, and Dr. Kaminer have been granted the title of Professor.—*Bologna*: Dr. F. Caldesi has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Budapest*: Dr. Franz Gebhardt and Dr. S. Ritook have been recognised as *privat-docenten* of Medicine, Dr. R. Bálint as *privat-docent* of Neurology, and Dr. E. Scipiades as *privat-docent* of Midwifery and Gynæcology.—*Cincinnati* (*Ohio-Miami Medical College*): Dr. McElderry Knower, Adjunct Professor in Toronto University, has been appointed Professor of Anatomy in succession to Dr. Lewis.—*Cordova* (*National University*): Dr. Aquiles Villalba has been appointed to the chair of Bacteriology; Dr. Antonio Nores to that of Operative Medicine; and Dr. Alejandro Centeno to that of Clinical Medicine.—*Cracow*: Dr. Thadée Kozniewski has been recognised as *privat-docent* of Pharmacology.—*Heidelberg*: Dr. Zade of Jena has been recognised as *privat-docent* of Ophthalmology.—*Leipsic*: Dr. Hans Steinert, First Assistant in the University Medical Clinic, has been appointed Extraordinary Professor of Medicine.—*Munich*: Dr. Karl Kopp, *privat-docent* of Dermatology, and Dr. Wilhelm Herzog, *privat-docent* of Surgery, have been promoted to Extraordinary Professorships.—*Palermo*: Dr. Giacinto Viola of Messina has been appointed Professor of Internal Pathology.—*Parma*: Dr. Franco Carini has been recognised as *privat-docent* of External Pathology.—*Pavia*: Dr. Luigi Frigerio of Sienna has been recognised as *privat-docent* of Psychiatry.—*Philadelphia* (*University of Pennsylvania*): Dr. A. N. Richards, Professor in the Northwestern Medical School, Chicago, has been appointed Professor of Therapeutics and Pharmacology in succession to Dr. Edsall.—*Rome*: Dr. Augusto Giannelli has been recognised as *privat-docent* of Neurology.—*Sienna*: Dr. Teodoro Zoras has been recognised as *privat-docent* of Bacteriology.—*Toronto*: Dr. John A. Amyot has been appointed Professor of Hygiene in succession to Dr. Oldright, resigned.—*Tübingen*: Dr. G. Perthes, Extraordinary Professor in Leipsic, has been appointed to the chair of Surgery in succession to Dr. P. von Bruns, resigned.—*Vienna*: Dr. Vikkov Widakowich has been recognised as *privat-docent* of Embryology.

THE ANTIVIVISECTION HOSPITAL: A CASE IN THE CORONER'S COURT.—On Wednesday, Nov. 1st, a case was investigated at the Battersea coroner's court by Mr. John Troutbeck, who held an inquiry with respect to the death of an infant aged 9 months. Evidence was given to show that on Thursday, Oct. 27th, the child while at the house of an aunt was placed on the floor and seen to put a piece of coal to his mouth, when he "turned blue" almost at once. Concluding that he had swallowed some coal the child's uncle snatched him up and ran off with him to the nearest practitioner's. Here an examination failed to discover the presence of coal, but the medical man advised that the child should be taken to the Bolingbroke Hospital. This advice was not followed because there was no conveyance immediately available, but the baby was taken by a neighbour, who started with the intention of going to St. Thomas's Hospital, to the Antivivisection Hospital (the Battersea General Hospital), the symptoms having grown so alarming that the change of plan seemed necessary. In her evidence the child's aunt said that at the Antivivisection Hospital a nurse told her she must go to the relieving officer and get a paper because they were going to send the child to the infirmary. They had done what they could, the nurse said, and had used the stomach-pump, but could not find any coal. The nurse also said there must be an immediate operation. The coroner asked why the child should be removed, seeing it was already at a hospital. This question the witness confessed her inability to answer. Mr. Cartwright Sharp, who appeared on behalf of the hospital authorities, asked the witness if she was sure the nurse said anything about the stomach-pump. She replied that she was; and her husband said the medical man at the hospital told him the child had been ill two or three days and was suffering from scarlet fever and pneumonia in the right lung, and, moreover, was in a dying condition. "I'm certain of this," the witness said, when questioned by the coroner. He stated further that the doctor at the hospital said: "I can do nothing for the child here. You had better take him away." When the witness said he could not take him away, the doctor said, "Shall I telephone to the infirmary?"—The Coroner: Did the doctor give no reason for removing the child?—Witness: Yes; he said I haven't got a bed. We don't keep beds for children here.—The Coroner: Had you told him the child had swallowed coal?—Witness: I told him I thought he had. Mr. Sharp questioned the witness, who in the main adhered to his statements. The neighbour who had brought the child gave a slightly different version. She said the doctor at the hospital said the child had a rash coming out which might prove to be scarlet fever, and asked, "Will you take him home and have a private doctor or shall we send him to the infirmary, as we have no bed?" Dr. W. L. Maccormac, the assistant medical superintendent of the infirmary, said that he received a telephonic message from the sister at the Antivivisection Hospital. So far as he remembered, the message was that she was speaking on behalf of the resident medical man, as they had a baby at the hospital who required tracheotomy. Asked if it was diphtheria she replied "I don't think the doctor quite knows." Nothing was said about coal. When admitted the child was practically dead. Witness immediately put a tube in the windpipe, operating in the kitchen of the receiving ward. The child revived but afterwards developed pneumonia and died on Saturday night. On making a post-mortem examination he found a piece of coal jammed in the "voice-box." It would have been difficult to locate it, and to remove it would have required a rather heroic operation. The pneumonia was caused by the presence of the coal. Mr. Cartwright Sharp suggested that tracheotomy was an operation which required the administration of chloroform or the presence of a skilled assistant. "I had to do it single-handed," said Dr. Maccormac. The resident medical officer at the Antivivisection Hospital, said he examined the throat thoroughly but could find no foreign body. Although very ill, he did not think the child was *in extremis*. He ordered a hot bath and a mustard poultice, as he thought he discovered a patch of pneumonia. In view of the history of the coal, and having no bed, he thought it best to get the patient into some other public institution. The sister suggested the infirmary. He did not know she said "instant tracheotomy" or "tracheotomy" was necessary. The sister was a little enthusiastic and sometimes she exceeded her instructions. The Coroner observed that on this occasion her enthusiasm seemed to be well directed. "Tracheotomy has been done and the child died," said the witness. The Coroner asked what he meant. He replied that when he saw the child he did not see any indication for tracheotomy, which a juryman observed was "rather a feeble answer."—The Coroner: Why was this child not kept in?—Witness: We had not a bed.—The Coroner: Do you mean to say you could not make shift to put up a bed for a child of 9 months?—Witness: I daresay we might if we had thought of it. I thought the child would be better in an institution where there was a bed.—The Coroner: That's putting the hospital on a lower level than the infirmary.—Witness: I recognised the possible necessity of tracheotomy; that is why I sent it.—The Coroner: Why did you not do the tracheotomy yourself?—Witness: I thought it was not safe to do so without the assistance of someone at that stage.—The Coroner: Could you not have got assistance?—Witness: Not in the same time as in an institution where they have more capacity than we have. The father of the child heatedly asked for a further explanation. He was told by the witness that he thought the child could be best treated in a public institution where there were

more available appliances. He thought it quicker to send to another institution than to telephone for another medical man to assist him. They would probably not have come—they would have come, but they might not have come quickly. It was quite a matter of chance, while it was a certainty that the infirmary would take the case in, and that it would be properly attended to there. The Coroner, addressing the jury, remarked that it was difficult to understand the story of the child's reception and treatment at, and removal from, this general hospital. "I take no notice," he continued, "of the answer given me that the child had tracheotomy performed and it died. It is an unfortunate answer. I think it is better ignored." The jury returned a verdict in accordance with the medical evidence, and added this rider: "The jury do not appreciate the action of the Antivivisection Hospital authorities."

HUNTERIAN SOCIETY.—This society awards a silver medal annually for the best essay by a general practitioner embodying the results of his own observations. Intending candidates are reminded that the last day for sending in essays for the present competition is Dec. 31st, 1910. Any further particulars may be obtained from the honorary secretaries, 60, Welbeck-street, London, W.

SOUTH LONDON INSTITUTE FOR THE BLIND.—Lord Southwark, the president and chairman of the South London Institute for the Blind, has sent us an appeal on behalf of this institution, which is doing good work by educating and providing work for the blind and by supplying a home for young unmarried blind women. A sum of £2000 is required to meet existing liabilities. Contributions may be sent to the Rev. St. Clare Hill, 83, Borough-road, London, S.E. The bankers are the London and South-Western Bank, St. George's Circus, London, S.E.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—A meeting of this society was held on Oct. 21st. The accounts presented showed that the business of the society during the summer months had been as usual very satisfactory. The list of members permanently incapacitated continues to grow, but the ordinary sickness claims are fewer in number and of less duration than was expected, and, on the whole, there is a good margin in favour of the society. At each valuation of the society's business a special reserve is made in respect of the chronic sickness cases. Prospectuses and all further particulars may be obtained on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A council meeting of the association was held at the Holborn Restaurant on Oct. 19th, Dr. F. G. Crookshank being in the chair. The treasurer, Mr. E. G. Gibbs-Smith, reported a balance in hand. In accordance with the decision of the general meeting held in London, the terms of a letter to be sent to a number of societies and associations which represent the various interests of practitioners who hold public appointments under local and central authorities were discussed, and it was decided to ask for a preliminary meeting in which the interested societies could discuss the methods by which a mutual coöperation could be rendered possible. All communications should be made to Mr. D. A. Belilios, honorary secretary, at 109, Queen's-road, Wimbledon.

THE MEDICAL AND DENTAL DEFENCE UNION OF SCOTLAND, LIMITED.—The eighth annual general meeting of this union was held at Glasgow on Oct. 13th. Sir Hector C. Cameron occupied the chair, and there was a large attendance of members. The chairman, in submitting the annual report of the council, referred to the prosperous condition in which the finances of the union now stood. He stated that over one-fifth of the invested funds were derived from the excess of income over expenditure during the past year and that the fund now stood at £1849, which was equivalent to £1 10s. 2d. per member. He also referred to the insurance scheme under which, for a small premium, members are indemnified against claims of damages in the event of an action being unsuccessfully defended. In view of the fact that claims against members of the medical and dental professions are on the increase, the chairman emphasised the advice given by the council that every member of the professions in Scotland should not only be a member of the union but should be protected by an indemnity policy. The report was unanimously agreed to, and thereafter the election of office-bearers took place.

ARMY MEDICAL SERVICE.—An examination of candidates for not less than 15 commissions in the Royal Army Medical Corps will be held on Jan. 25th, 1911, and following days. The presence of candidates will be required in London from Jan. 23rd.

THE LONDON HOSPITAL MEDICAL COLLEGE.—We are desired to state that all members of the profession are cordially invited to the two lectures to be delivered by Mr. Hurry Fenwick in the clinical theatre of this hospital at 1 P.M. on Tuesdays, Nov. 8th and 15th.

THE M'CUNN SCHOLARSHIP.—Dr. A. Philp Mitchell, resident surgical officer at the Chalmers Hospital, Edinburgh, has been awarded the M'Cunn Scholarship in Surgery (value £100) open to all graduates of medicine of the Universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews of not more than three years' standing.

THE ILLUMINATING ENGINEERING SOCIETY.—A meeting will be held at the house of the Royal Society of Arts (John-street, Adelphi, London) on Nov. 8th, at 8 P.M., when a paper on Recent Advances in, and the Present Status of Gas Lighting, will be read by Mr. F. W. Goodenough. The chair will be taken by the President, Professor S. P. Thompson, D.Sc., F.R.S.

THE TYNDALL SCHOLARSHIP.—This scholarship, which was founded by Mrs. Tyndall, widow of the celebrated scientist, for research in connexion with the welfare of miners, has been awarded by the Royal Society to Mr. T. L. Llewellyn, M.D. Lond. The subject of Dr. Llewellyn's research work for which the award has been made is Nystagmus.

GLASGOW UNIVERSITY CLUB, LONDON.—The members of this club will dine at the Gaiety Restaurant, Strand, W.C., on Nov. 25th, at 7.30 P.M. The Right Hon. Lord Curzon of Kedleston, Lord Rector of the University, will occupy the chair. Members who intend to be present, or to introduce guests, are requested to give notice as early as possible to the honorary secretaries, 4, Bryanston-street, Portman-square, W.

ROYAL INSTITUTE OF PUBLIC HEALTH.—Two lectures will be given by Dr. C. Levaditi of the Pasteur Institute, Paris, on Monday and Tuesday next, the 7th and 8th instants, at 5 P.M., in the lecture room of the institute. The first lecture will deal with Phagocytosis and its Importance in Immunity; the second with Recent Epidemiological and Experimental Researches on Infantile Paralysis.

LITERARY INTELLIGENCE.—A new edition of "A Text-book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease," by Arthur R. Cushny, M.D. Aberd., F.R.S., is announced for publication by Messrs. J. and A. Churchill.—Mr. H. K. Lewis announces for early publication an entirely new work on "Medical Diagnosis" by Dr. W. Mitchell Stevens of Cardiff. Mr. Lewis also announces the immediate issue of a new booklet by Dr. Mildred Burgess on "The Care of Infants and Young Children in Health."

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.
Gynæcological Diagnosis. By Walter L. Burrage, A.M., M.D. Harv. Price 25s. net.

ARNOLD, EDWARD, London.
Hereditary Characters and Their Modes of Transmission. By Charles Edward Walker, M.Sc., M.R.C.S., L.R.C.P. Price 8s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, London.
Gynæcological Therapeutics. By S. Jervois Aarons, M.D. Edin., M.R.C.P. Lond. With Foreword by Sir Halliday Croom, M.D., F.R.C.P., F.R.C.S. Price 5s. net.
A Study of the After-Results of Abdominal Operations on the Pelvic Organs, based on a Series of 1000 Consecutive Cases. By Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S. Edin. Price 10s. 6d. net.

BAILLIÈRE, TINDALL, AND COX., London. BUTTERWORTH AND CO., London.
Accidents in their Medico-Legal Aspect. By leading Medical and Surgical Authorities. Edited by Douglas Knocker, Barrister-at-Law. Price 30s. net.

Communications, Letters, &c., have been received from—

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I.—Ilford, Ltd., Ilford; XVIIth International Congress of Medicine, Lond., Hon. General Secretary of; Internationalen Hygiene - Ausstellung, Dresden, (Nachrichten Bureau); Incorporated Midwives' Institute, Lond.; Illuminating Engineering Society, Lond.

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